

Manual of Instruction

1401

Data Processing System
Instructional Logic Diagrams
Volume 4

IBM Form 56-398

Ausgabe August 1962

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Units Addr.

no A or B Bit = 0000 - 3999

A Bit = 4000 - 7999

B Bit = 8000 - 11999

A+B Bit = 12000 - 16000

Hunder. Addr

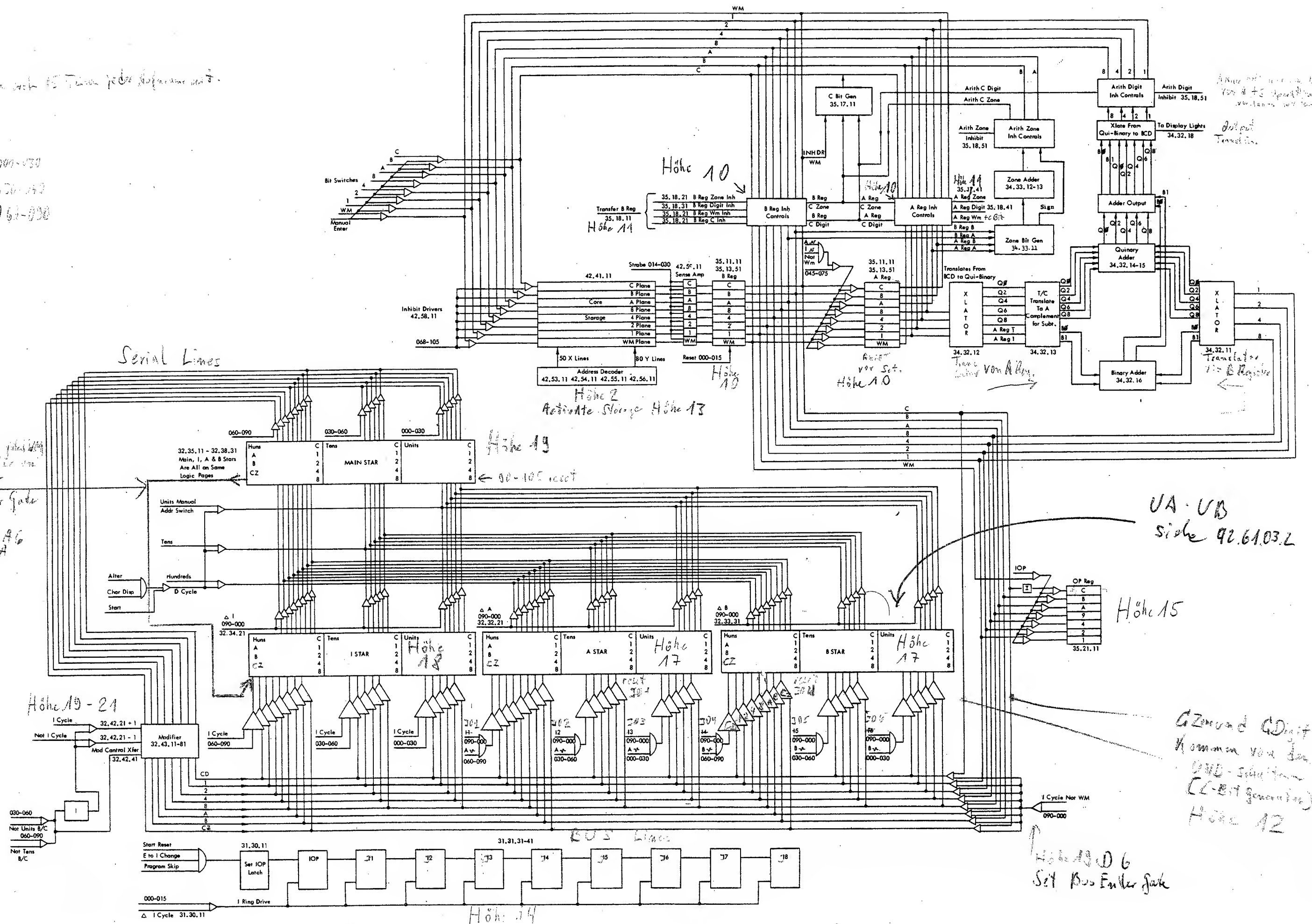
no A or B Bit = 000 - 999

A Bit = 1000 - 1999

B Bit = 2000 - 2999

A+B Bit = 3000 - 3999

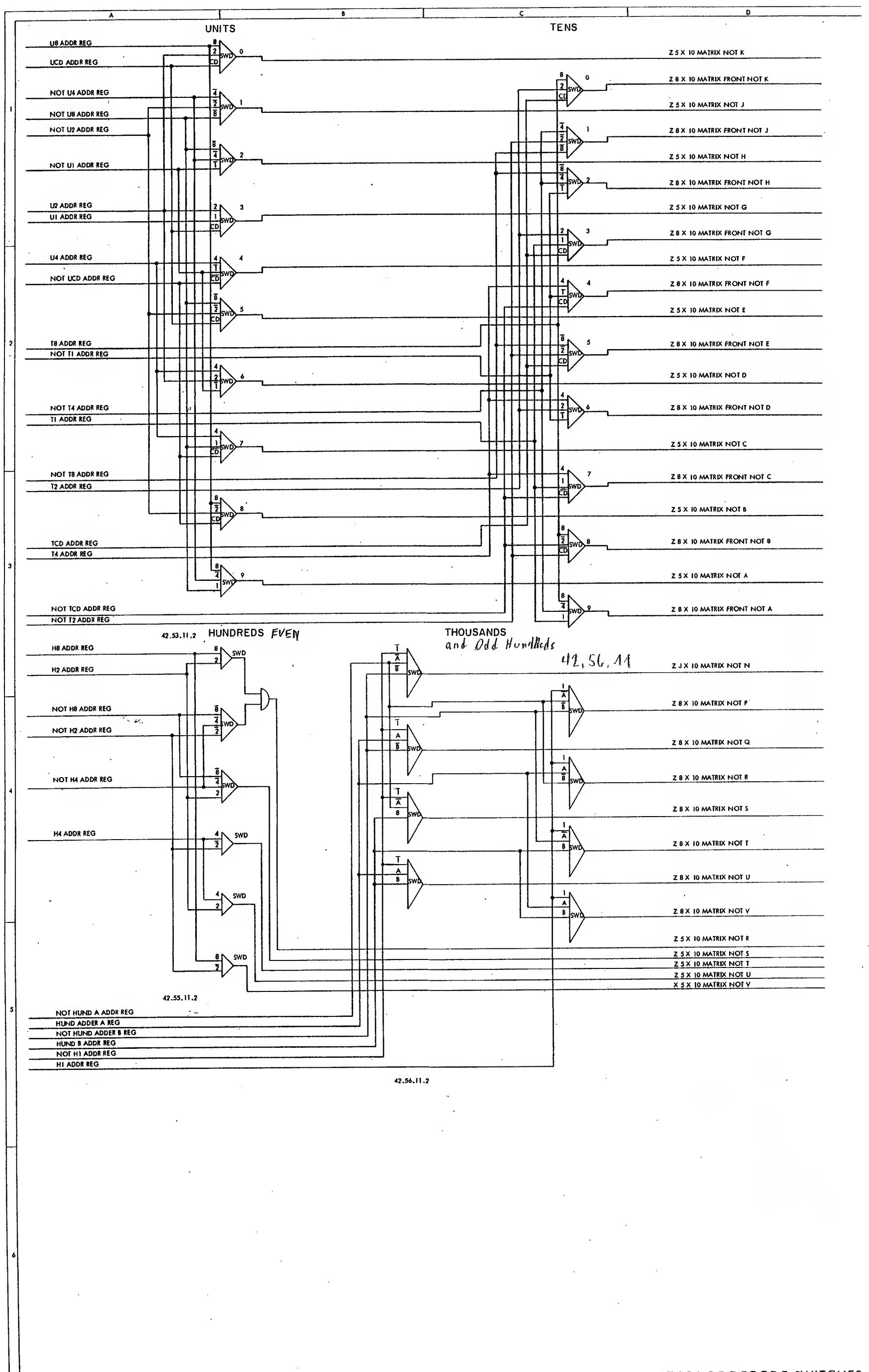
Unit: 007-030
 Ton: 030-042
 Gun: 060-030

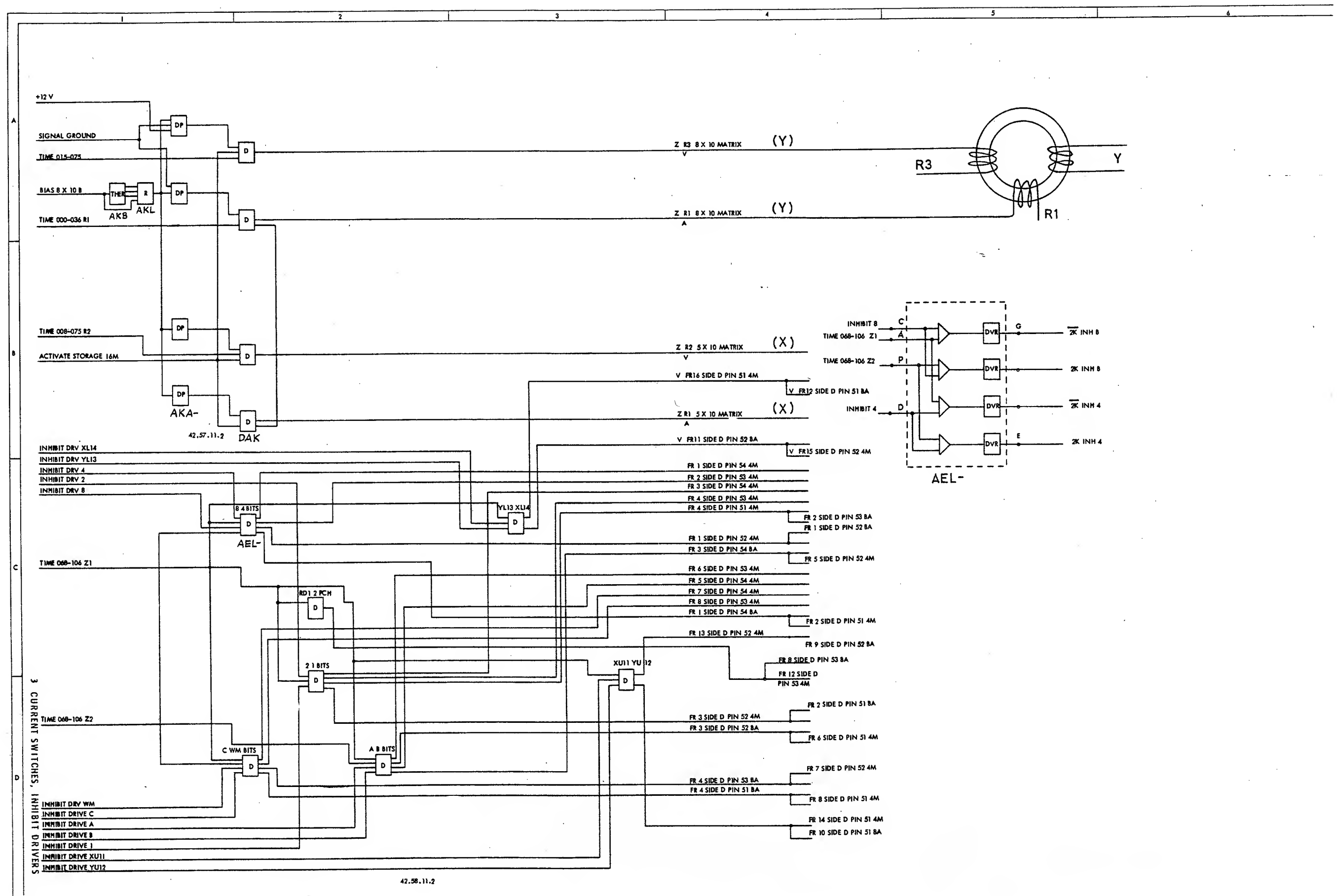


IBM 1401 SYSTEM DATA FLOW

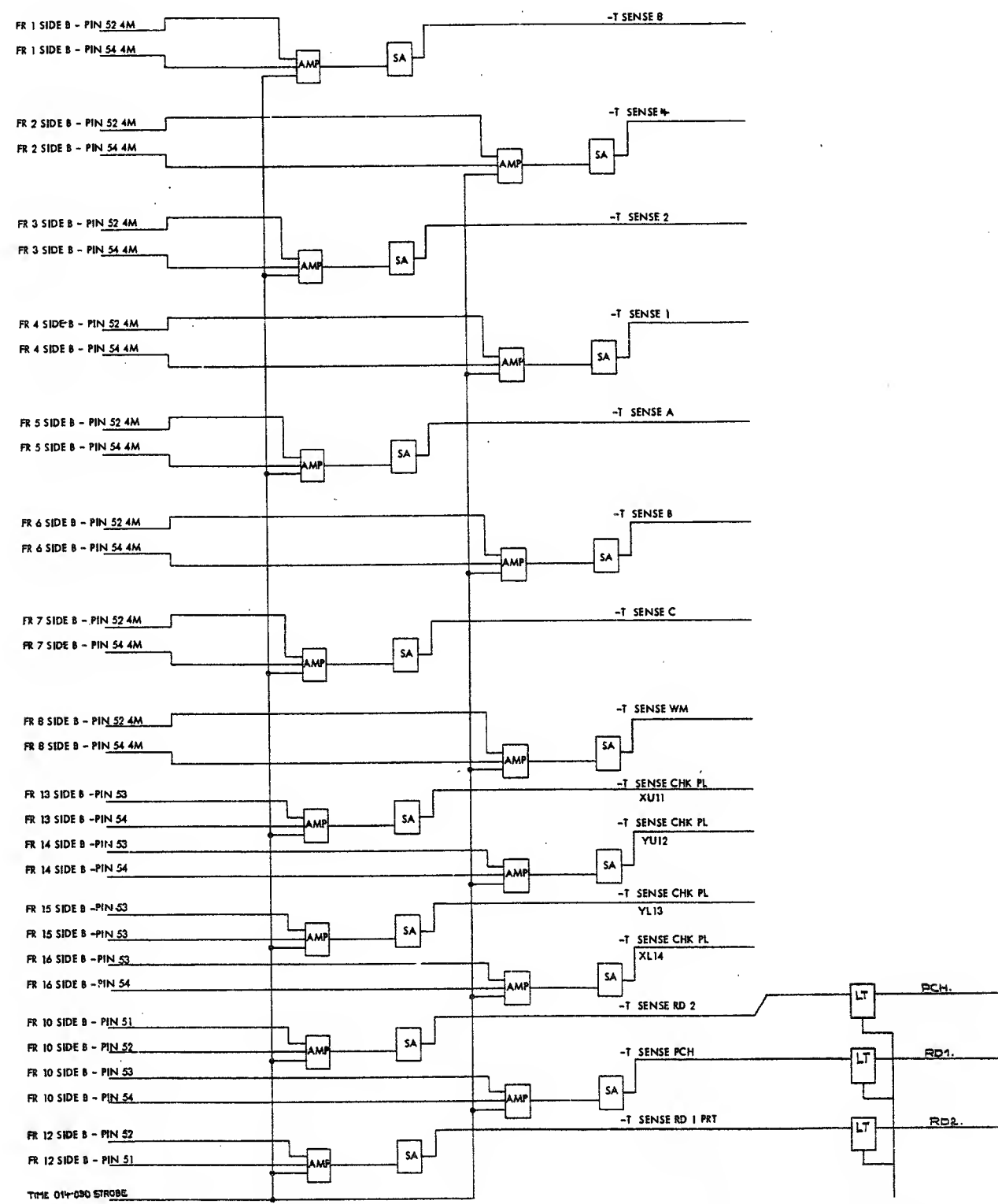
GZمند GZیت
 kommen von der
 DVD-Scheibe
 (C-27 gemacht)
 H2C 42

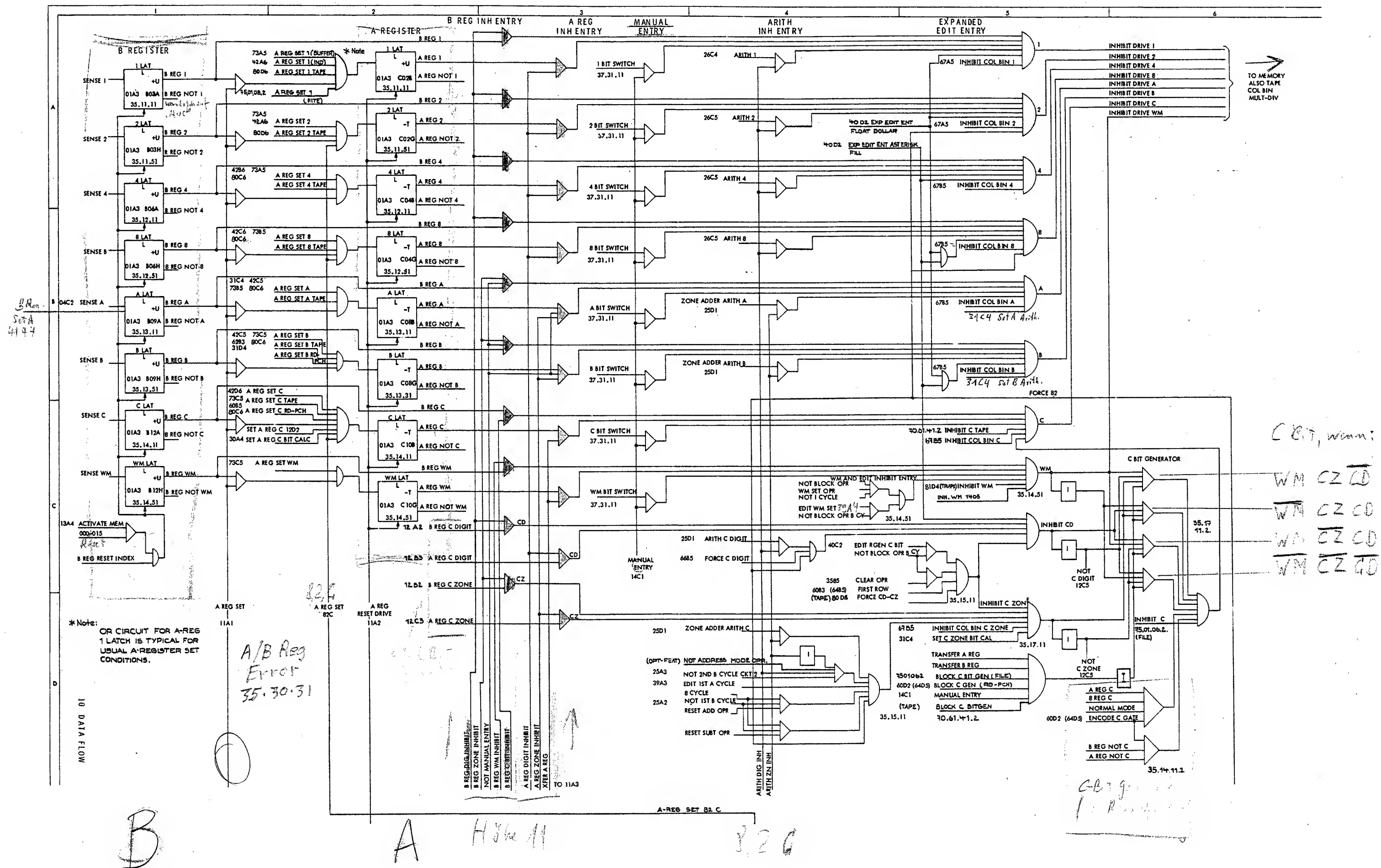
Set Bus Fuller Jack



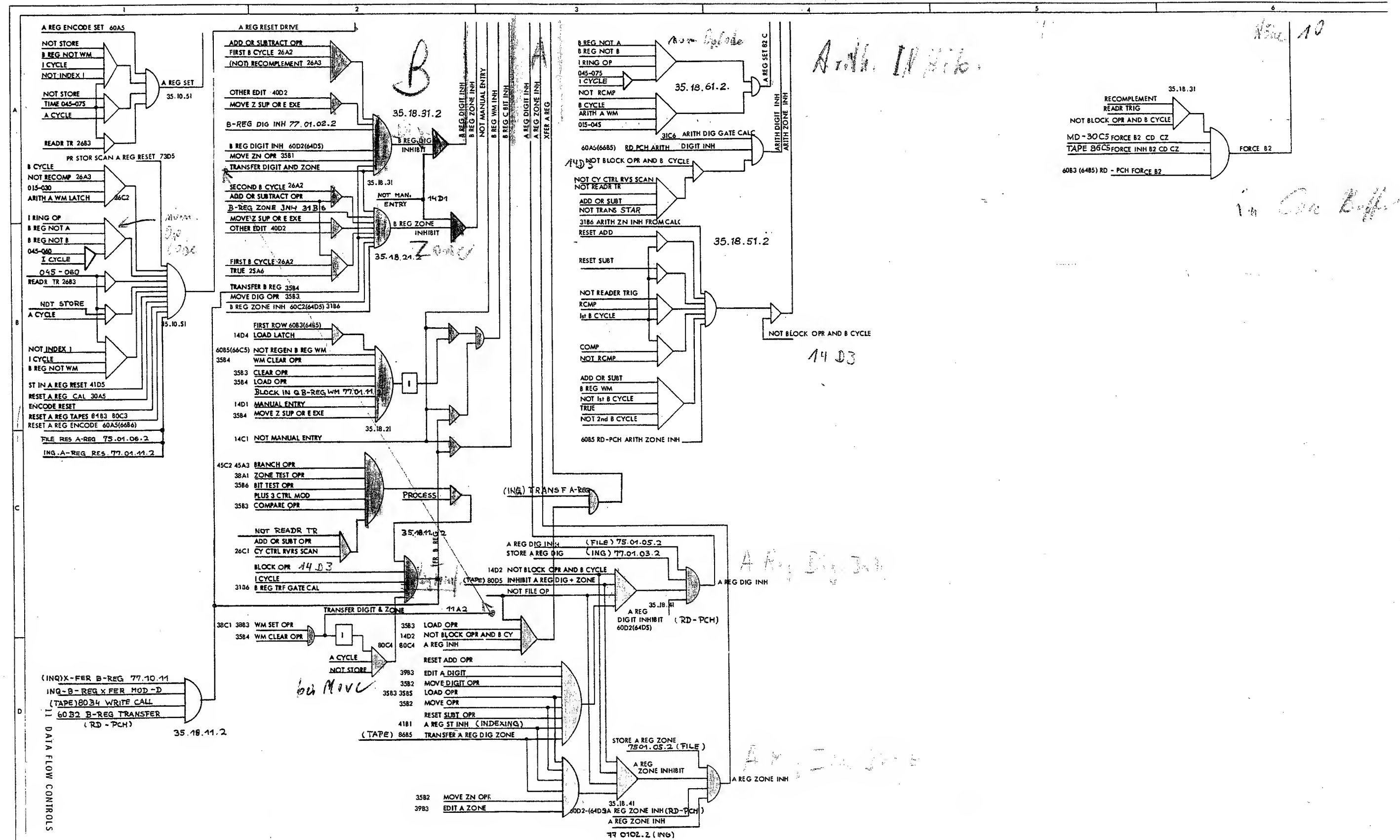


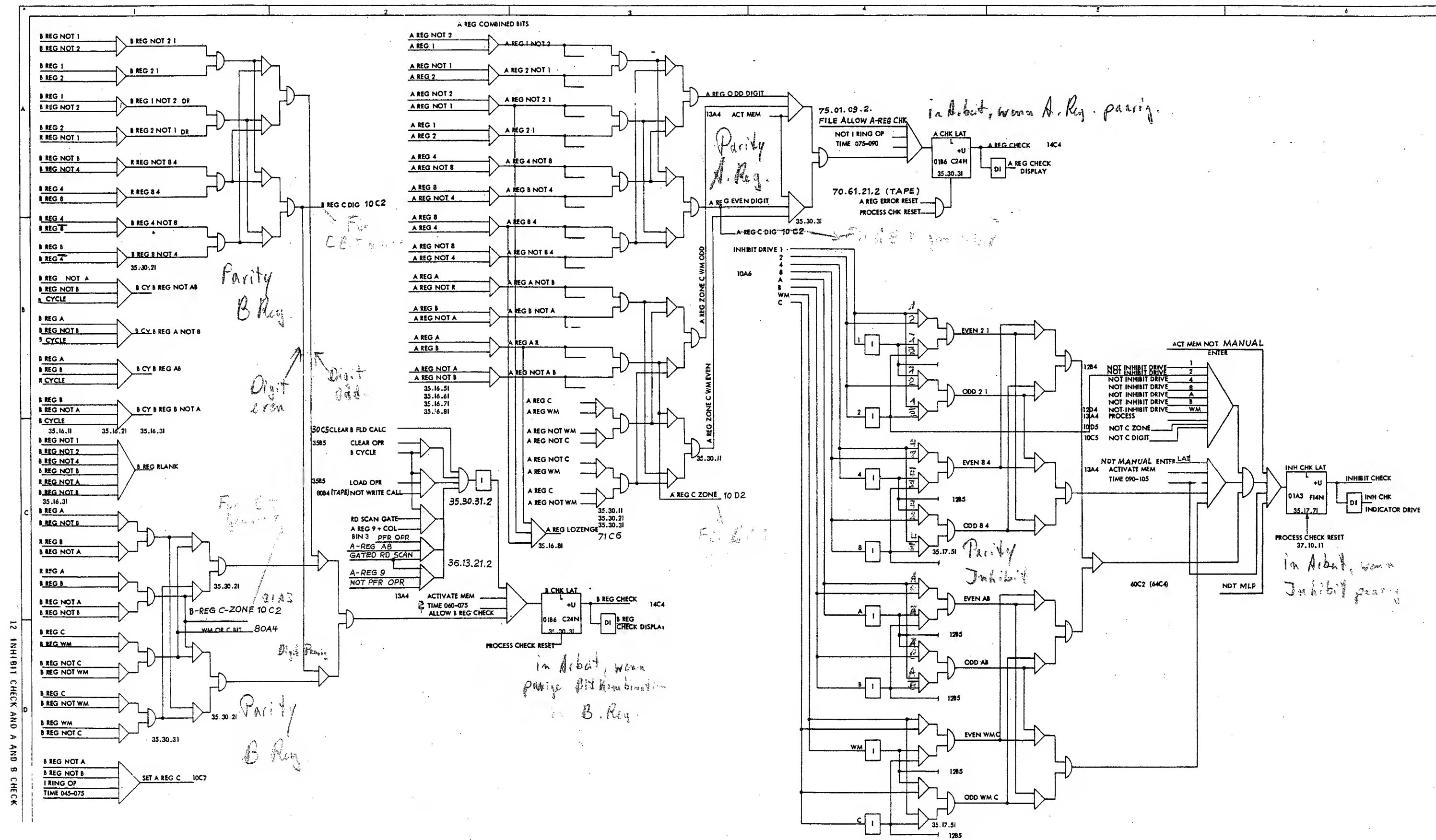
4 PRESENSE AND SENSE AMPLIFIERS

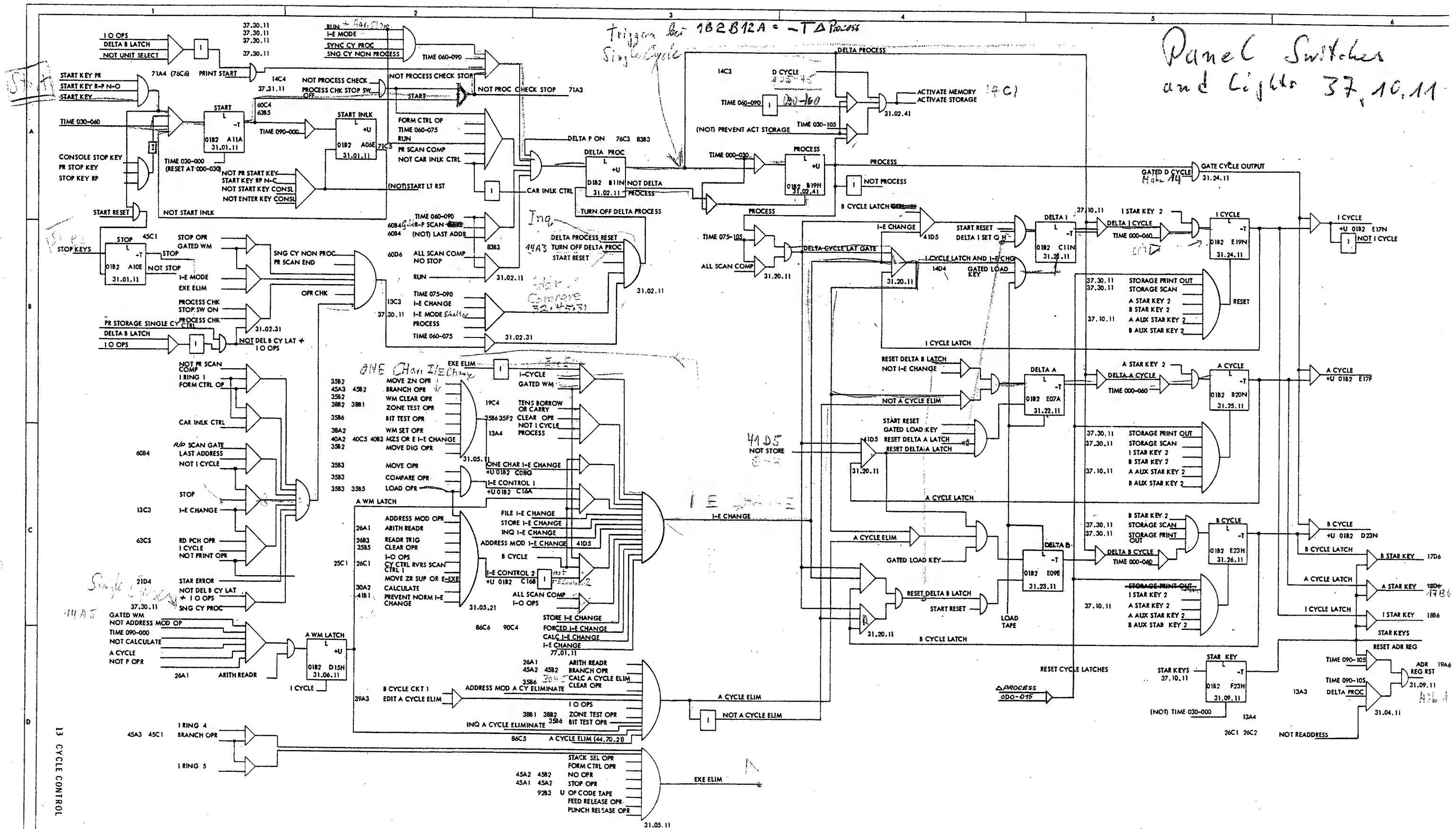




Force 8.2







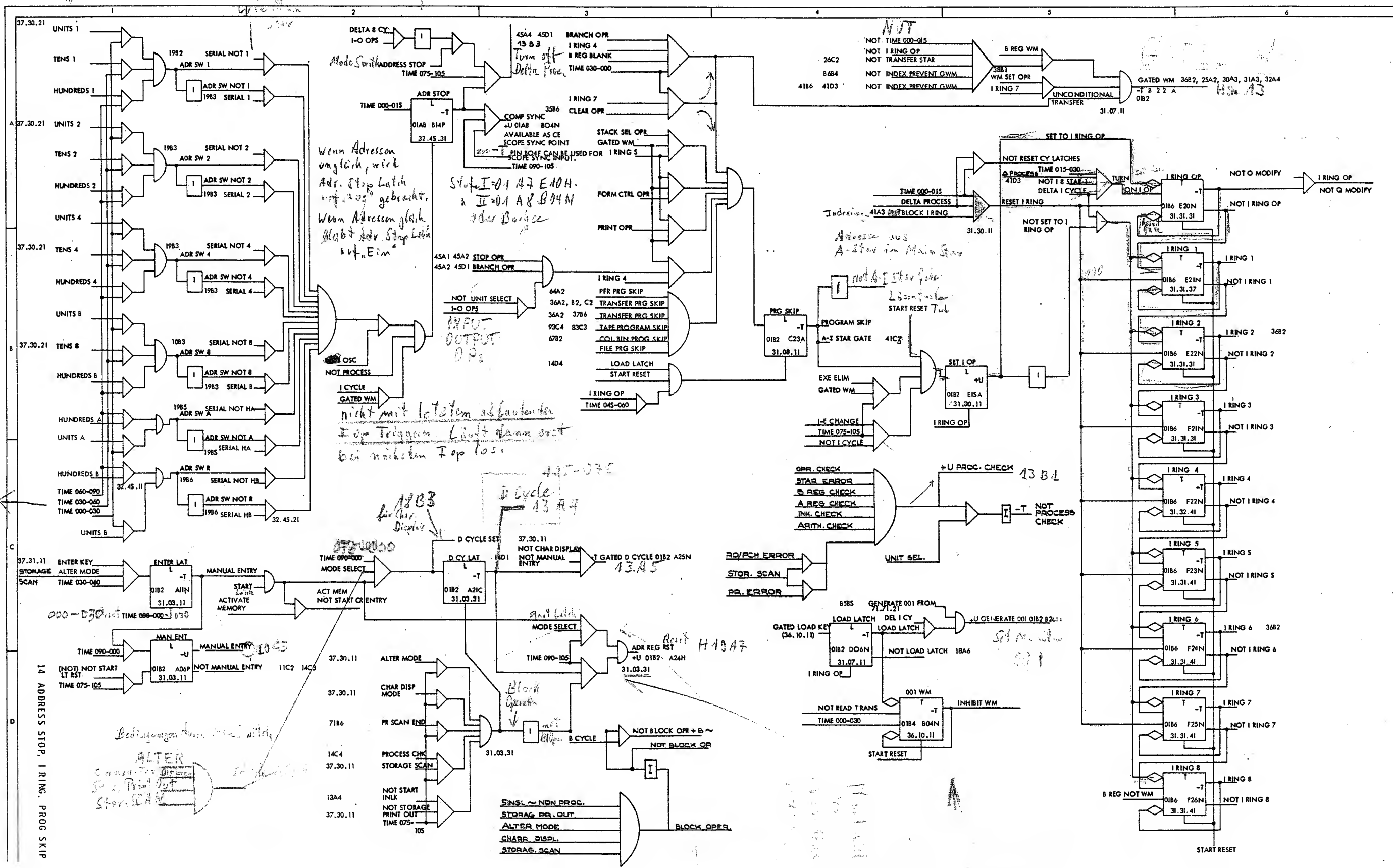
Ausgang des Adressenbusses

Adress Stop

95Z =
0-15
30-45
60-75
90-105

05Z =
15-30
45-60
75-90
105-120

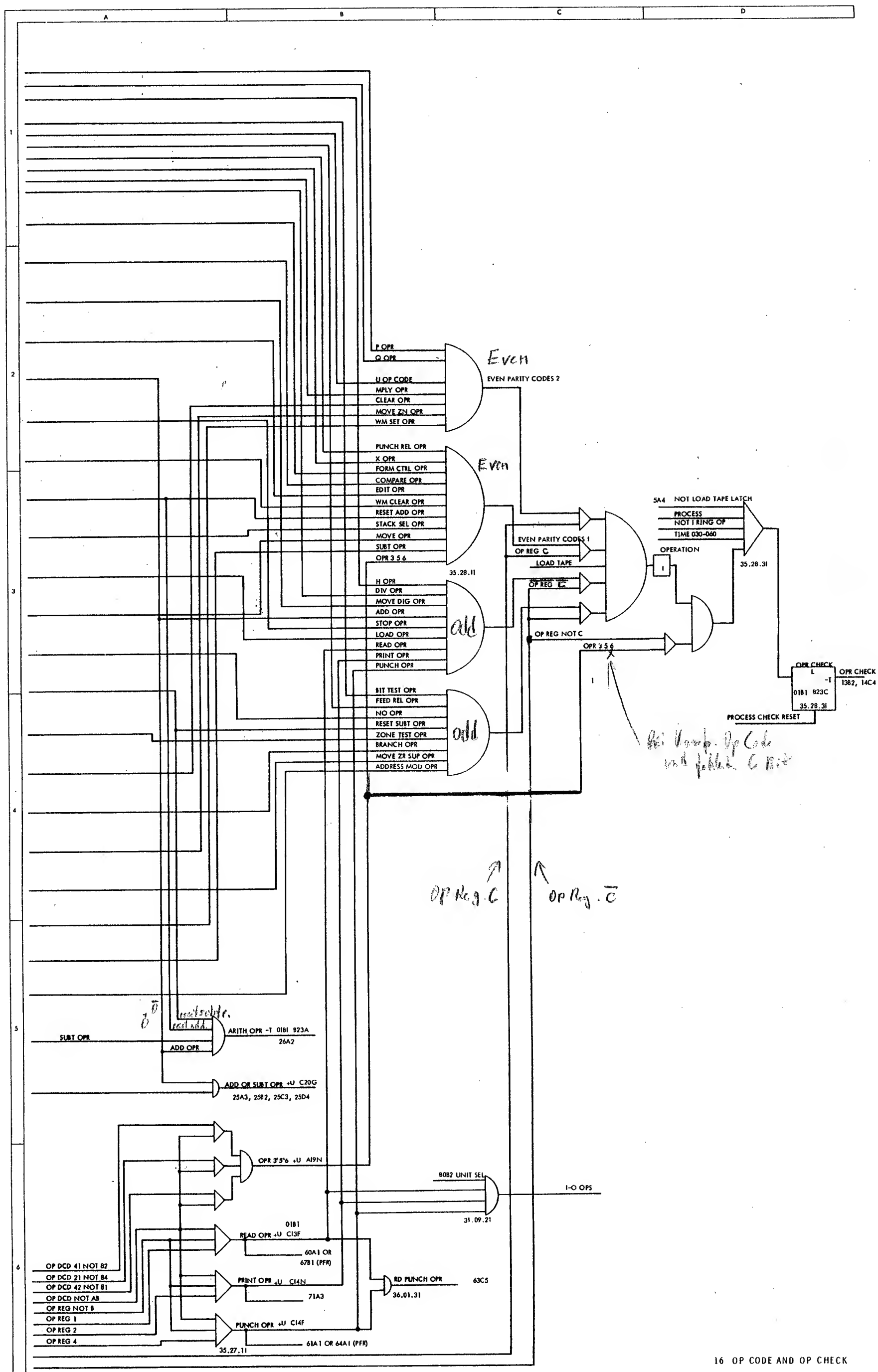
Siehe
Delta Flow
Main Stop



14 ADDRESS STOP, I RING, PROG SKIP

ALTER
SCAN
STOP

... Tape Seite 85



007.11.1 - Time = Star Reset

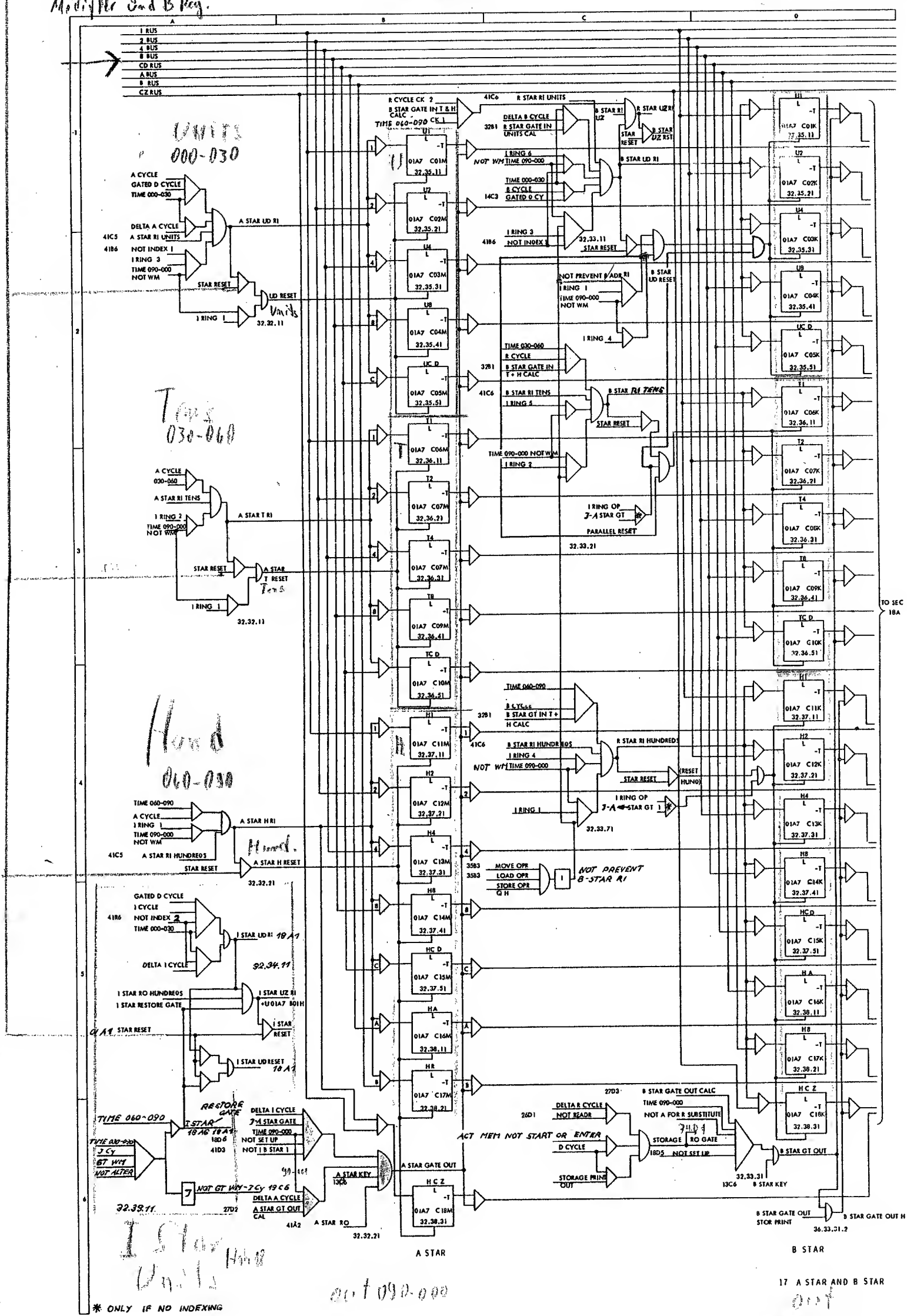
Star Reset Zeit

Reset Zeit = 052.

B-Star

A-Star

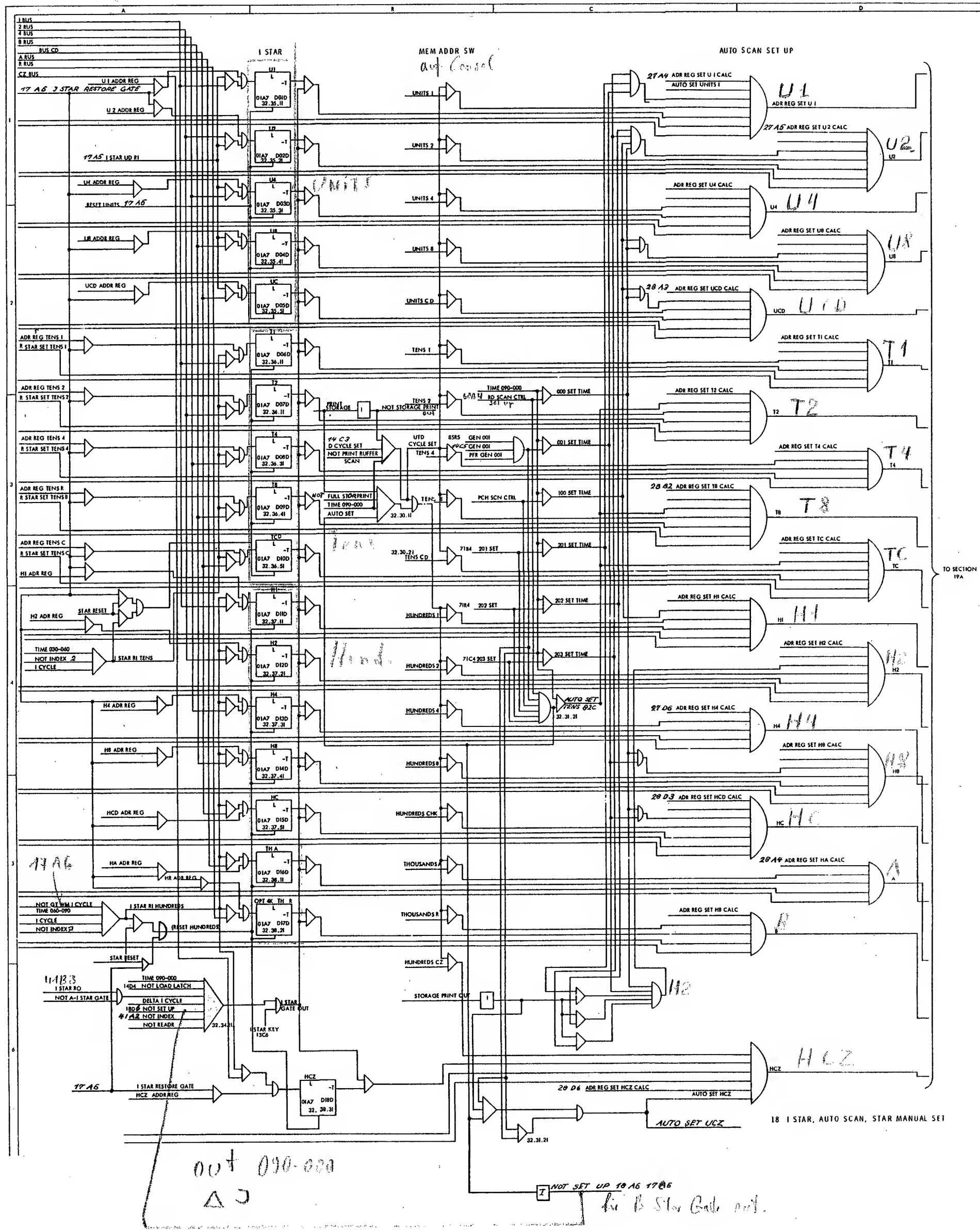
Ausgangs von Mod. 1111 und B. Reg.



Lösung siehe 17

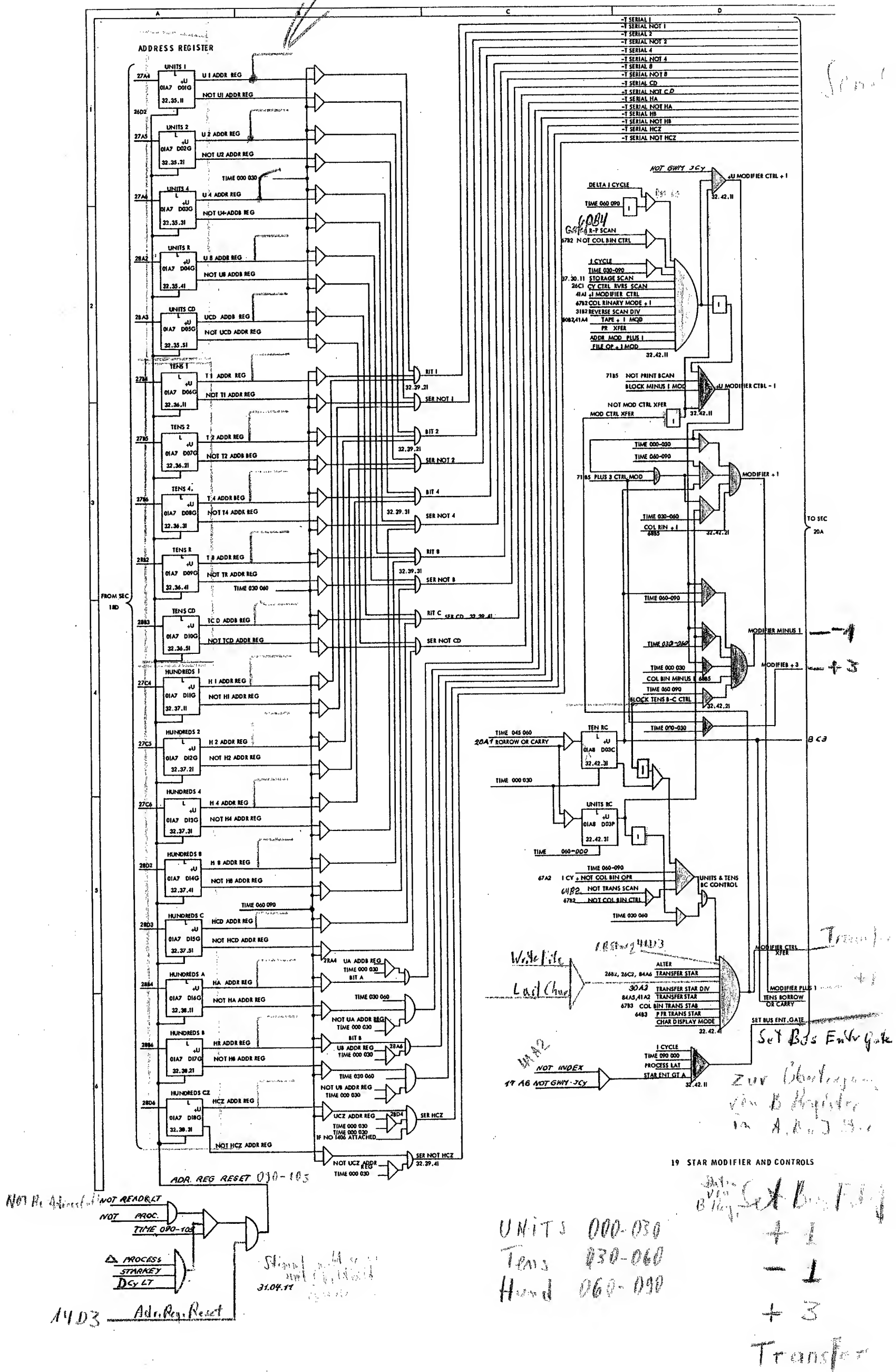
UNITS
Rest of RI
not 17

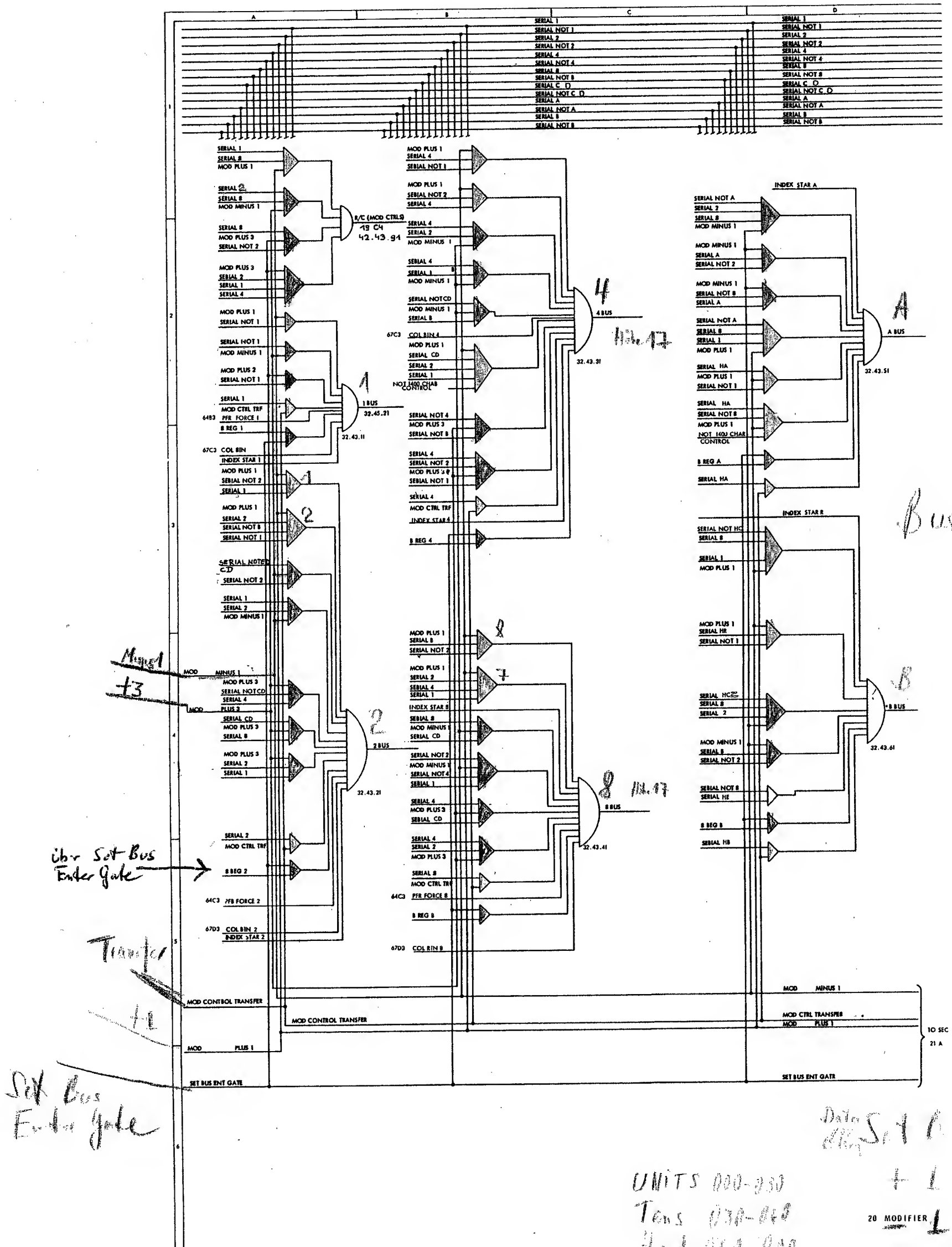
I-Star



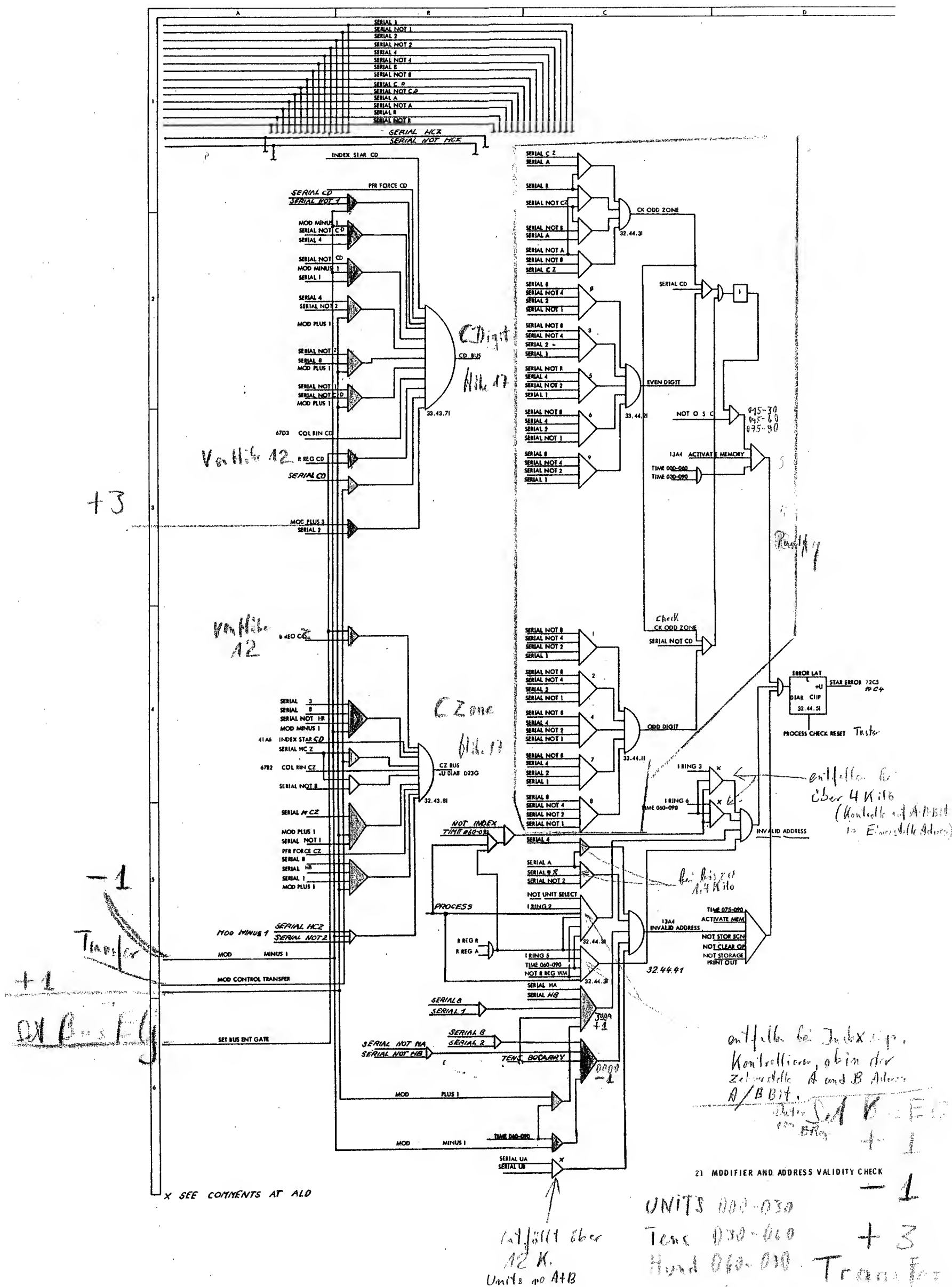
Lösung siehe 17

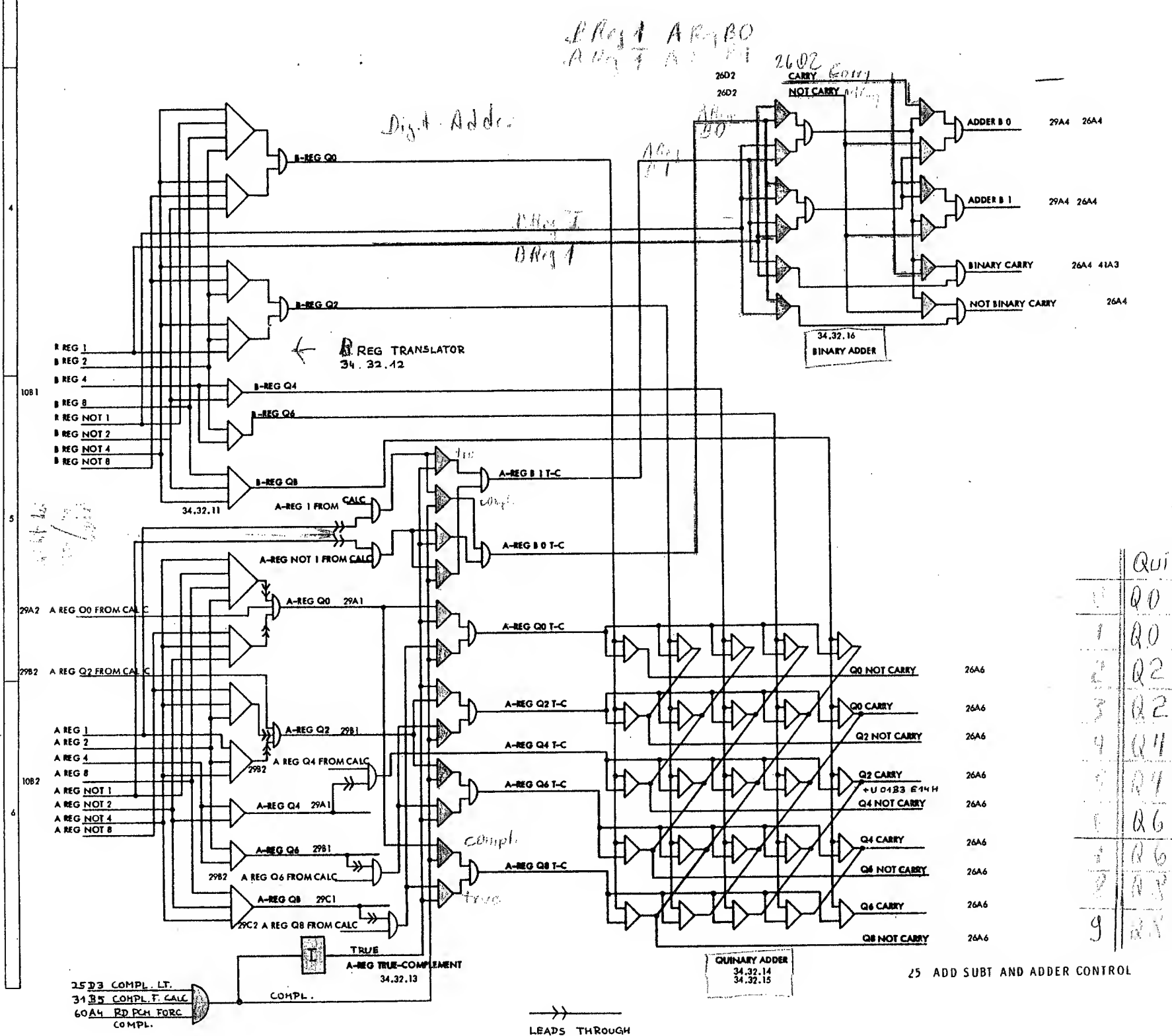
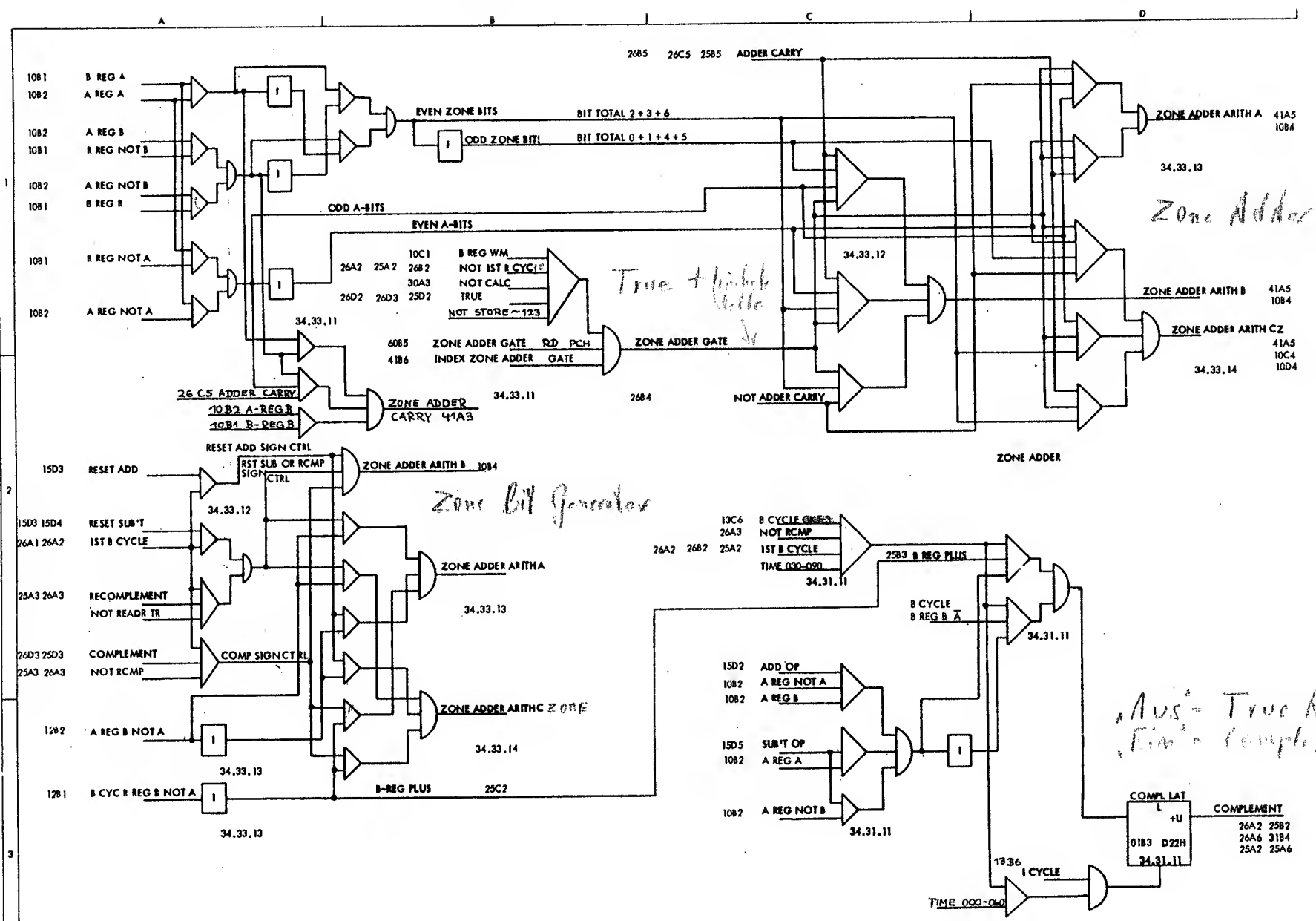
18 A A-6





UNITS 000-250
 Tens 030-040
 Hund 060-080
 + 1
 20 MODIFIER 1
 + 3
 Transfer





Quil	Bin
0	Q0 B0
1	Q0 B1
2	Q2 B0
3	Q2 B1
4	Q4 B0
5	Q4 B1
6	Q6 B0
7	Q6 B1
8	Q8 B0
9	Q8 B1

LEADS THROUGH M/D CIRCUITS IF INSTALLED

True + high value

Avs = True Add
 Fin = Compl. Add

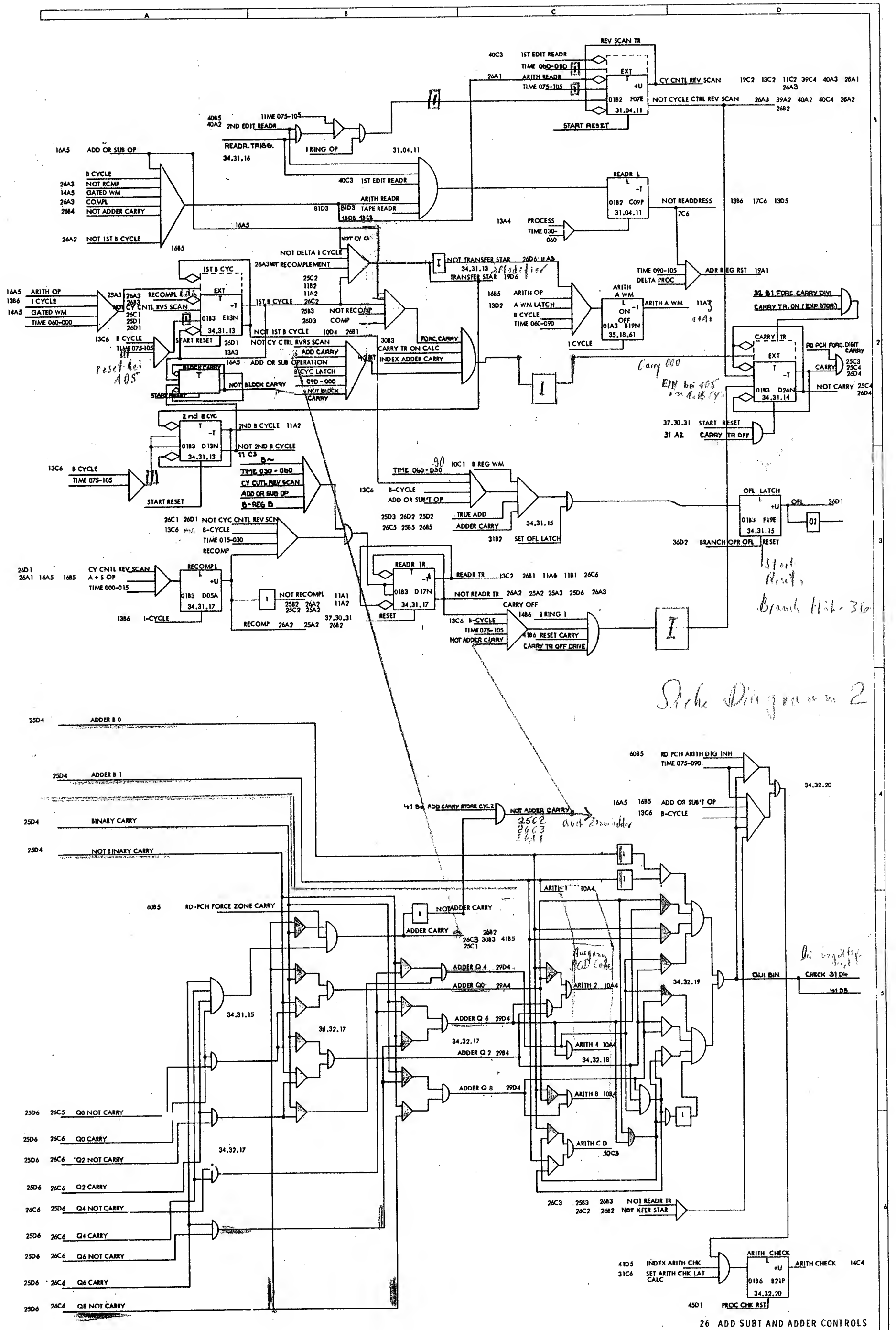
Digit Adder

Reg 1
 Reg 2

2602
 2602

QUINARY ADDER
 34.32.14
 34.32.15

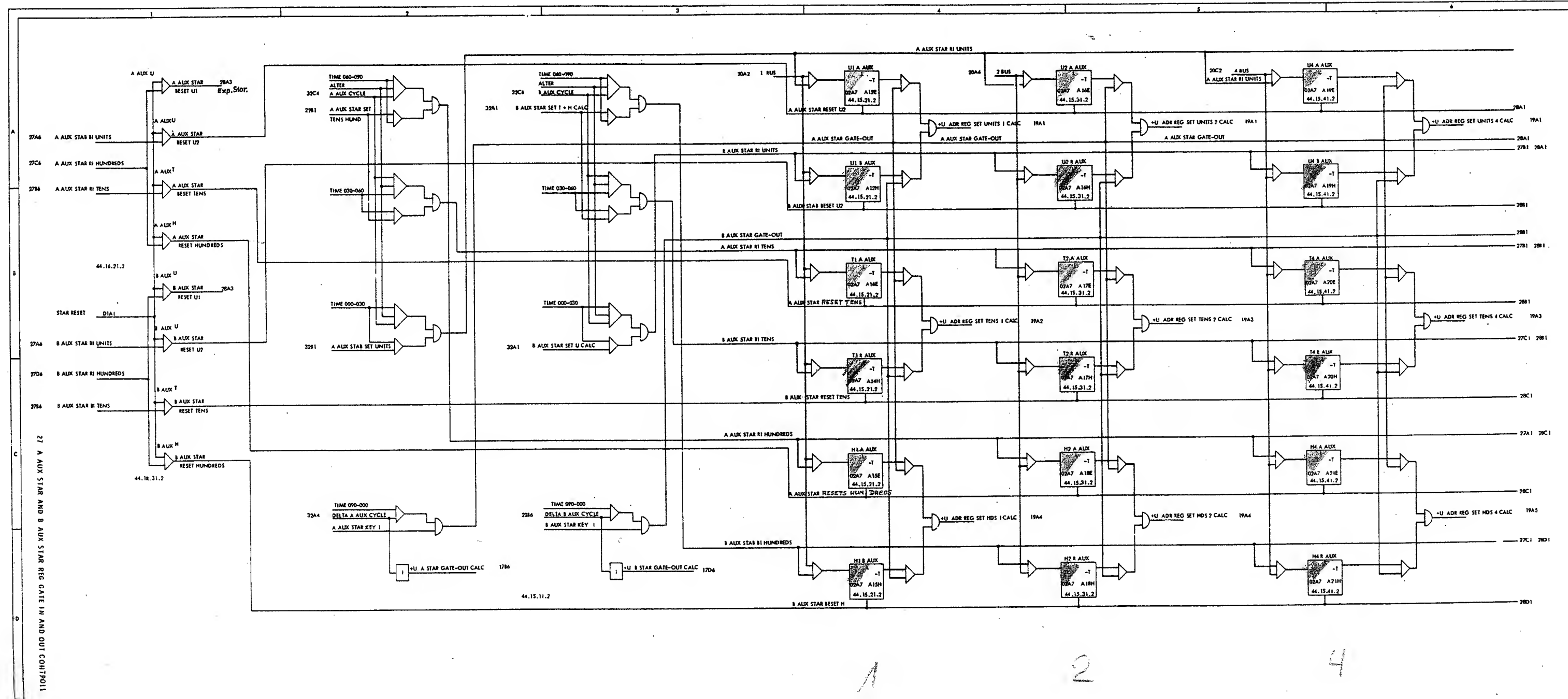
25 ADD SUBT AND ADDER CONTROL



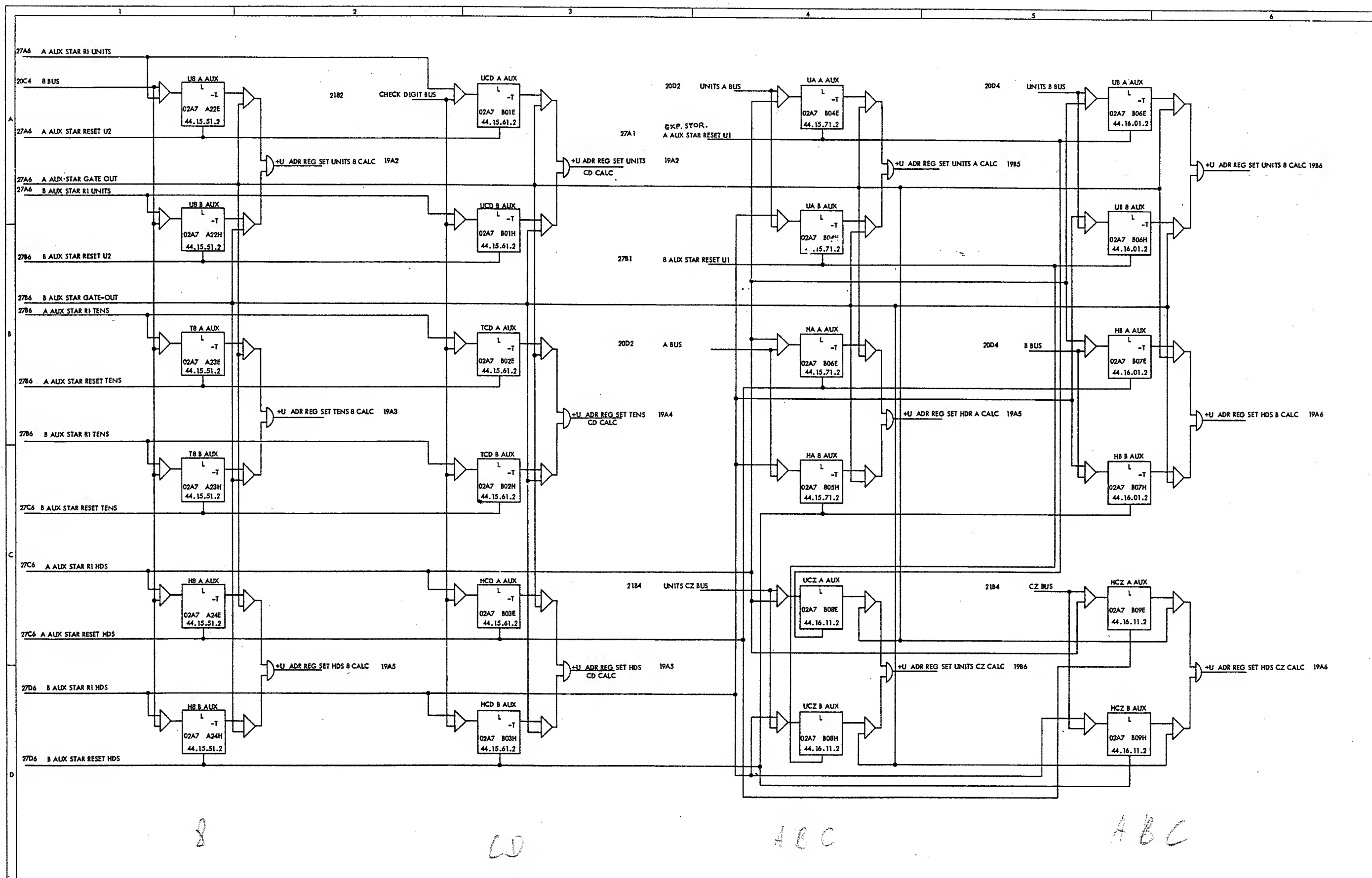
A
B
1

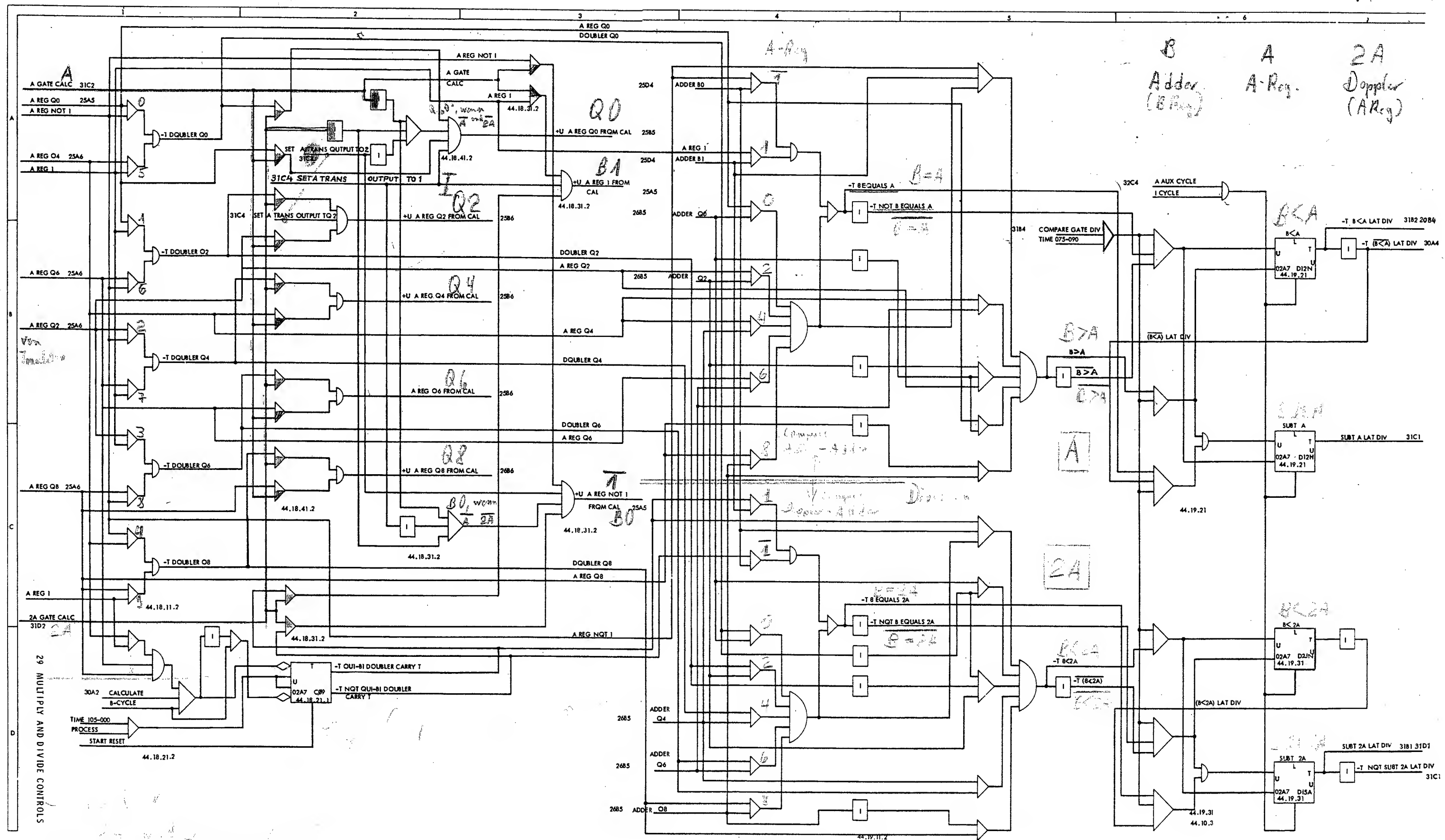
2

4

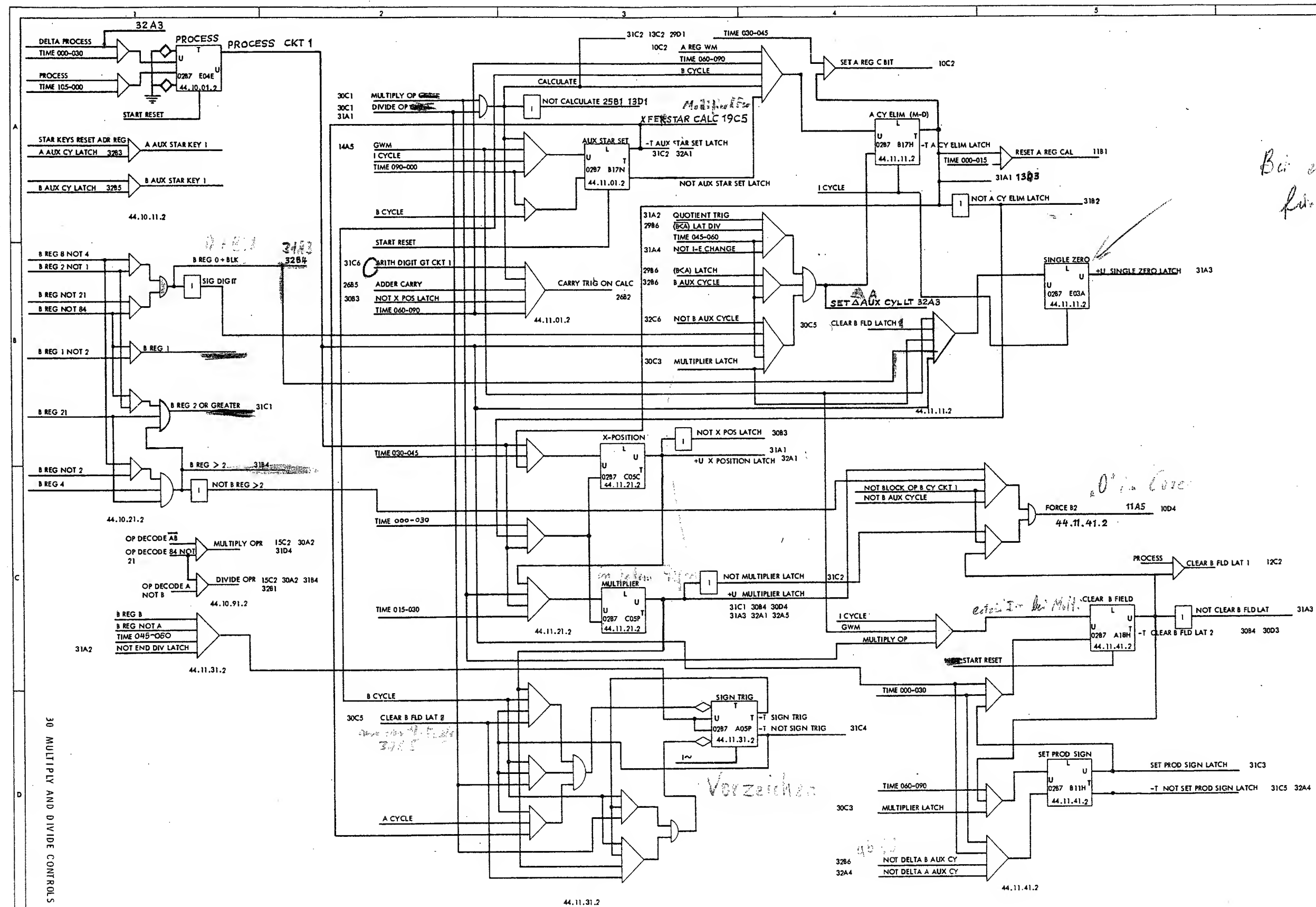


28 A AUX STAR AND B AUX STAR REG GATE IN AND OUT CTRLS

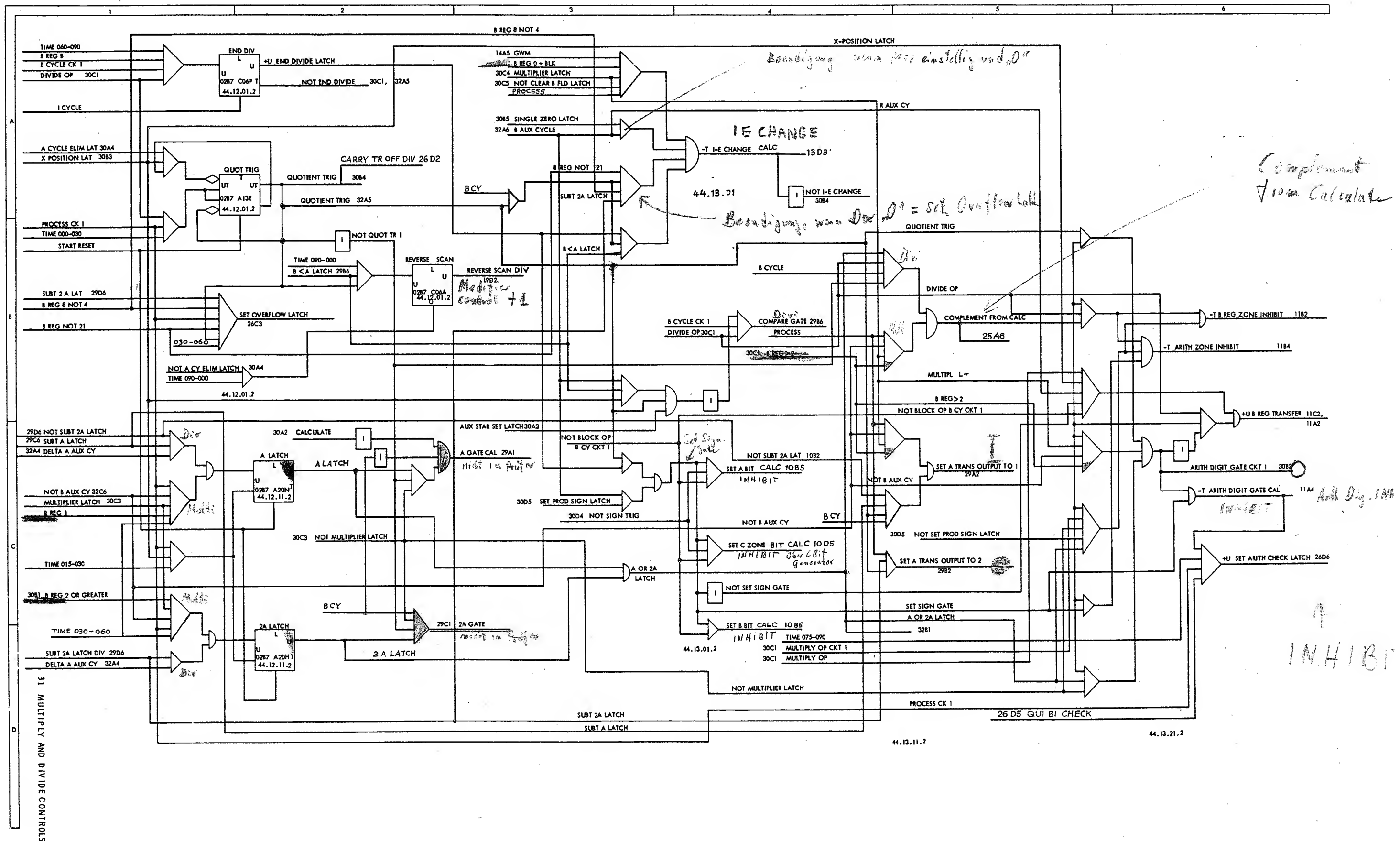


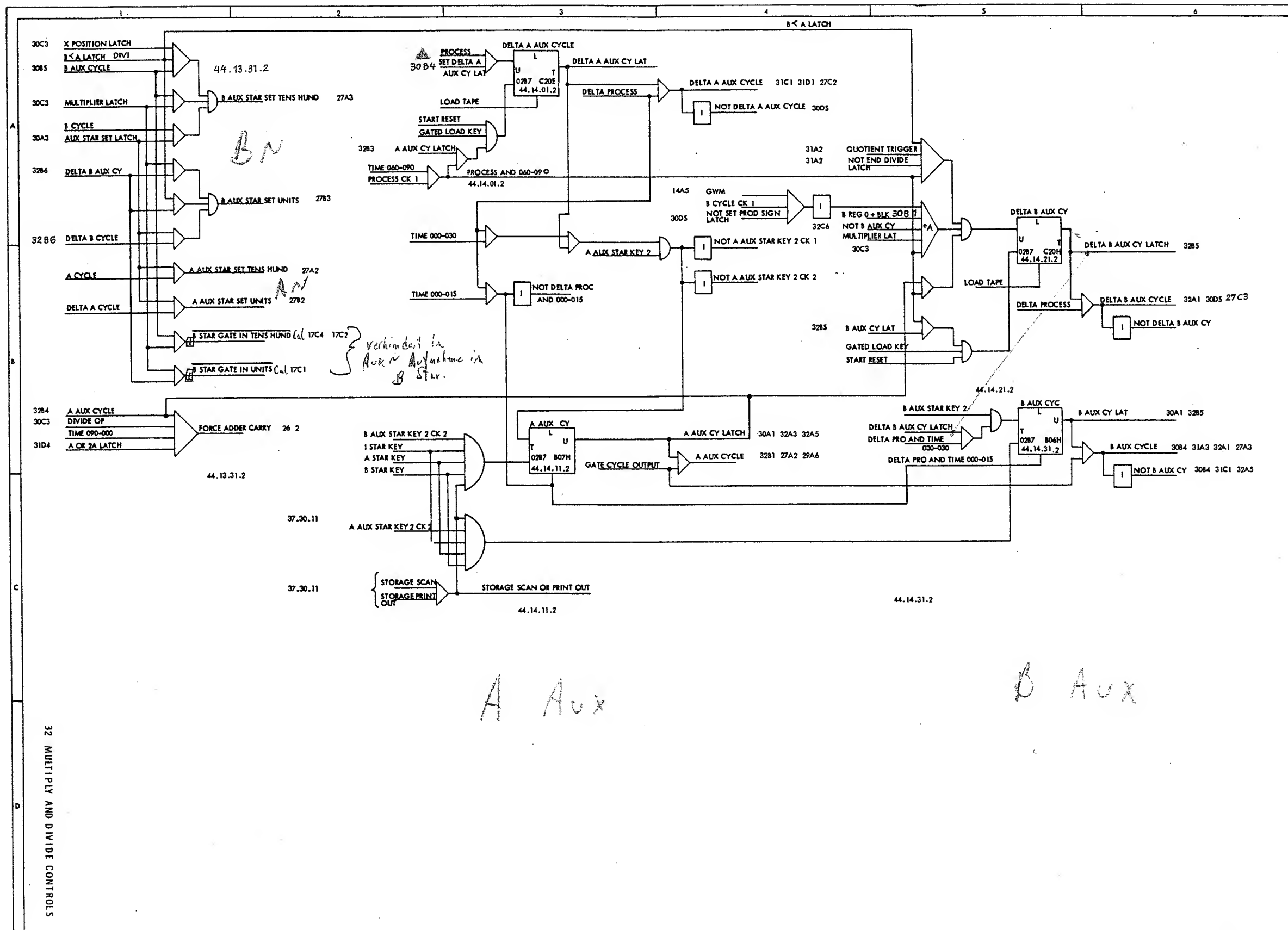


29 MULTIPLY AND DIVIDE CONTROLS



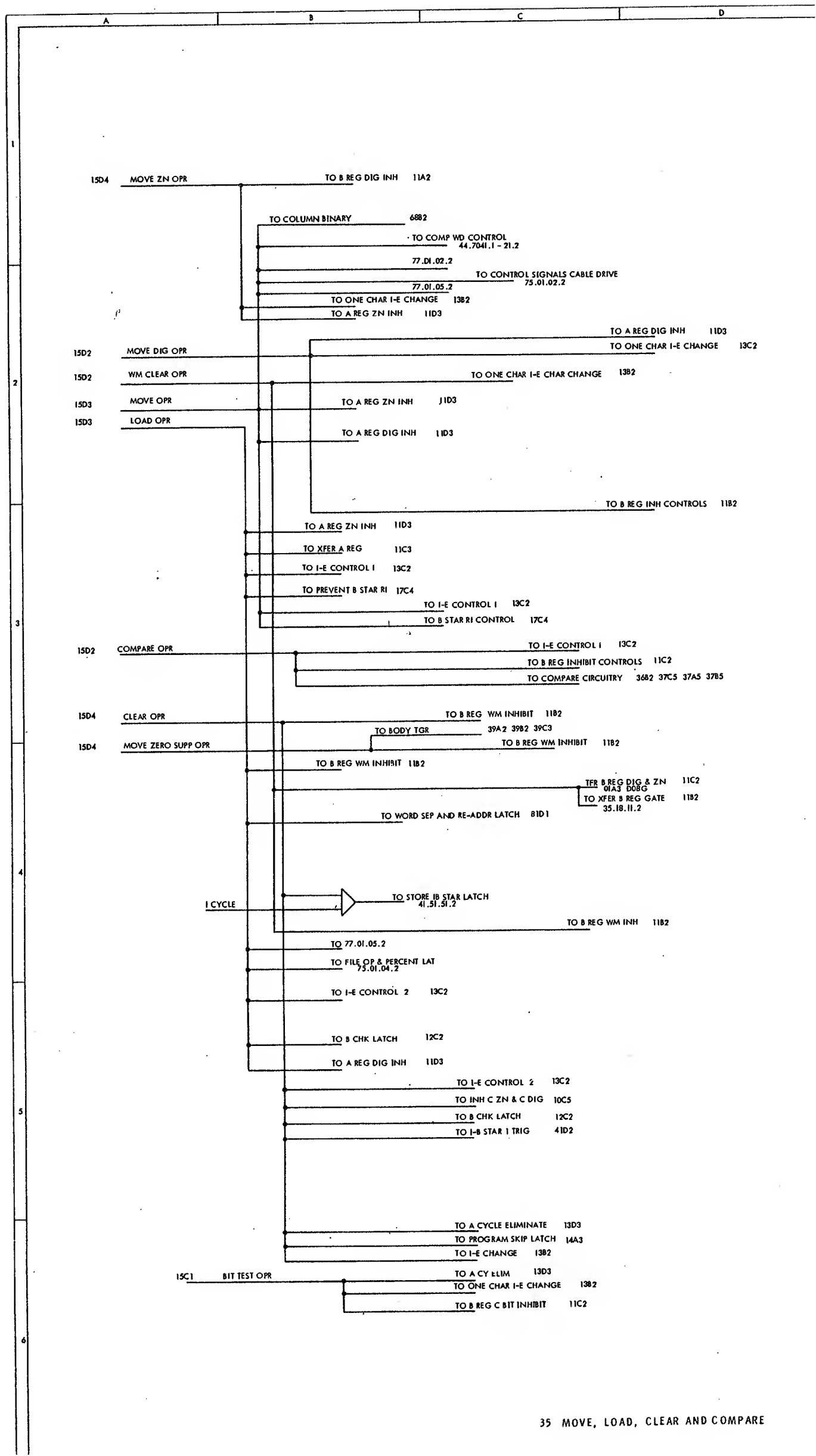
Bei anstelligem Mr und O^o
für Vorzeichen

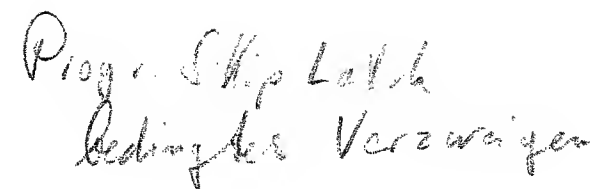


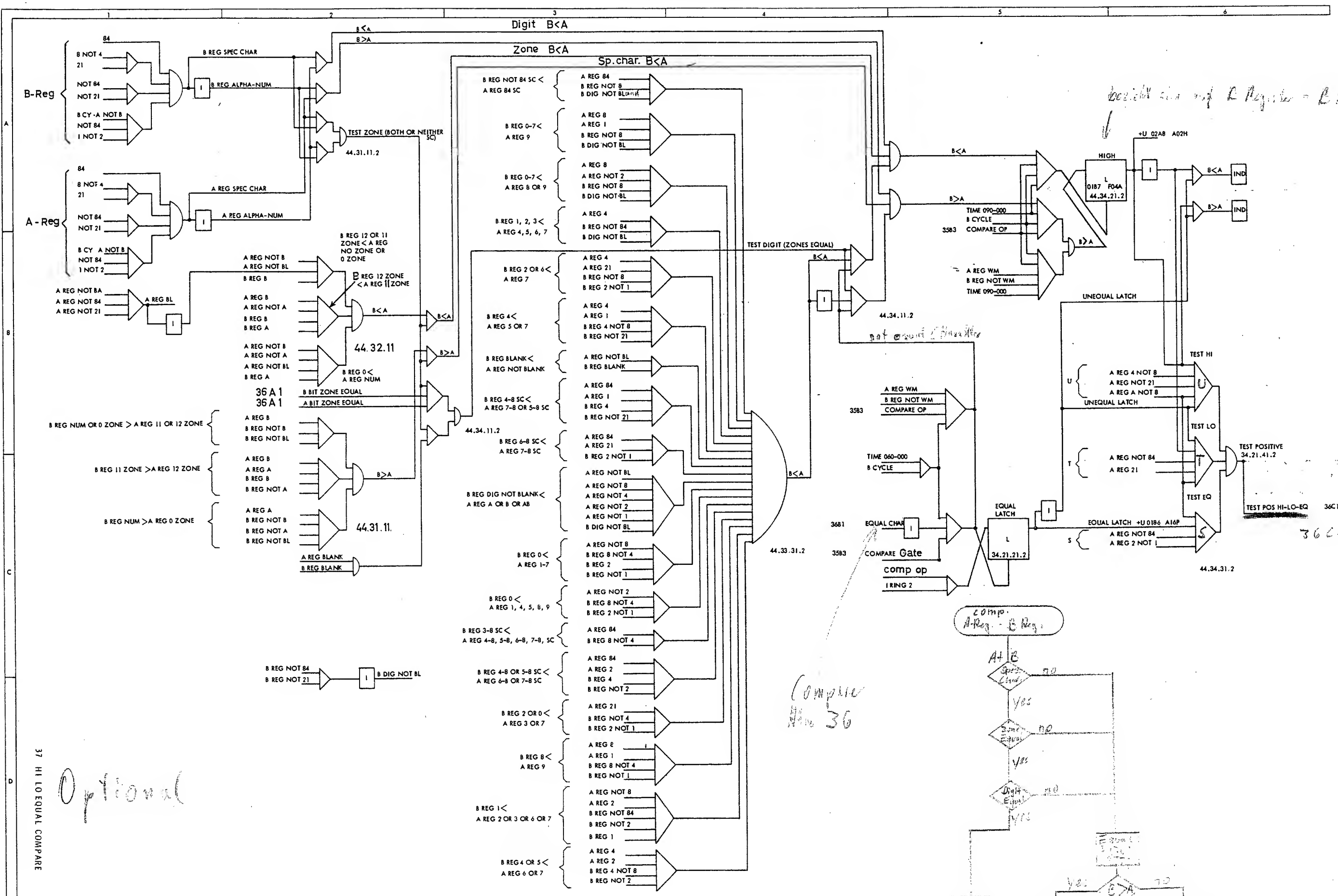


A Aux

B Aux



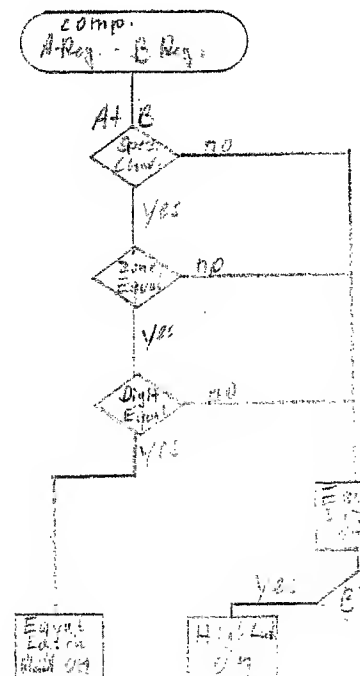




37 HI LO EQUAL COMPARE

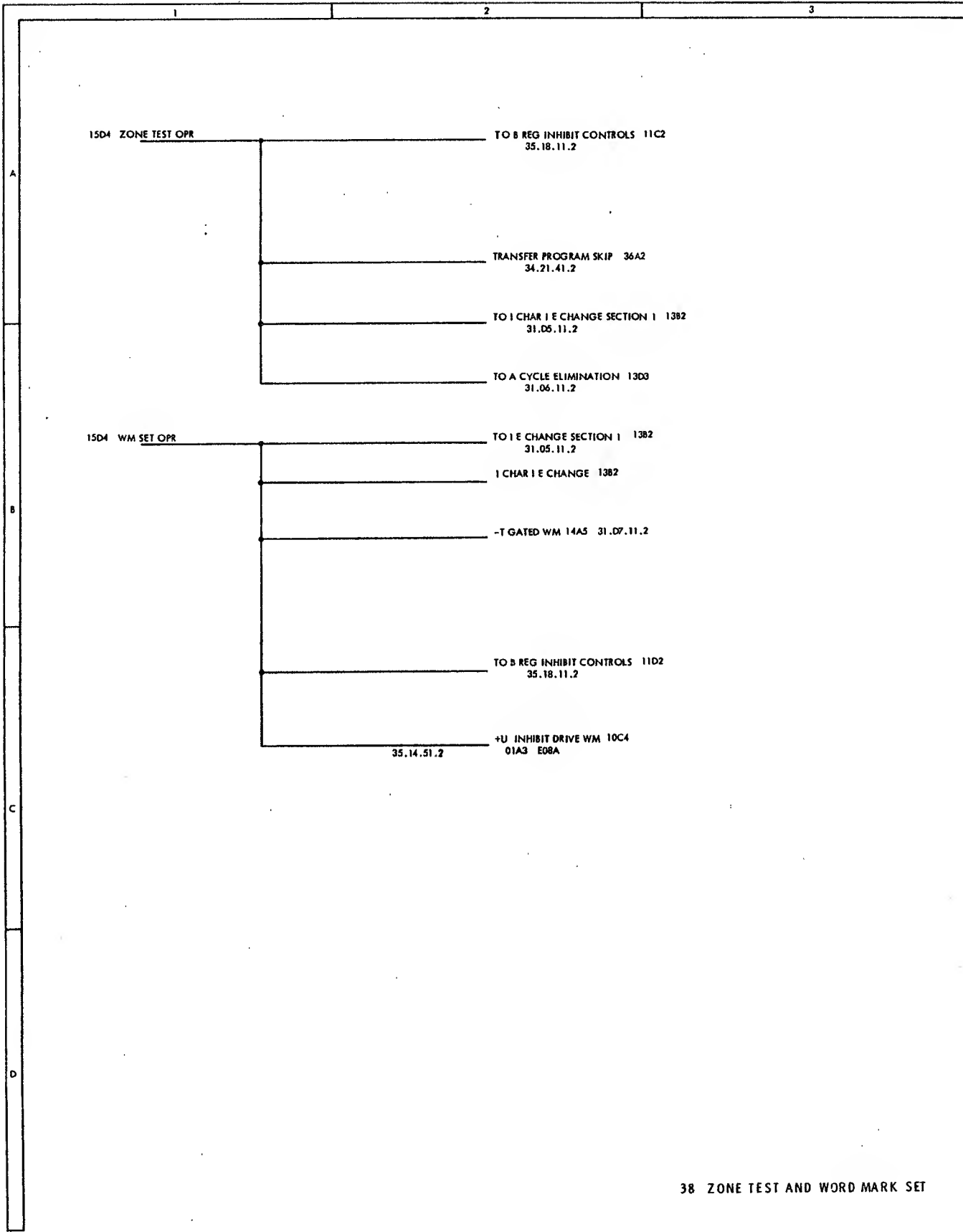
Optional

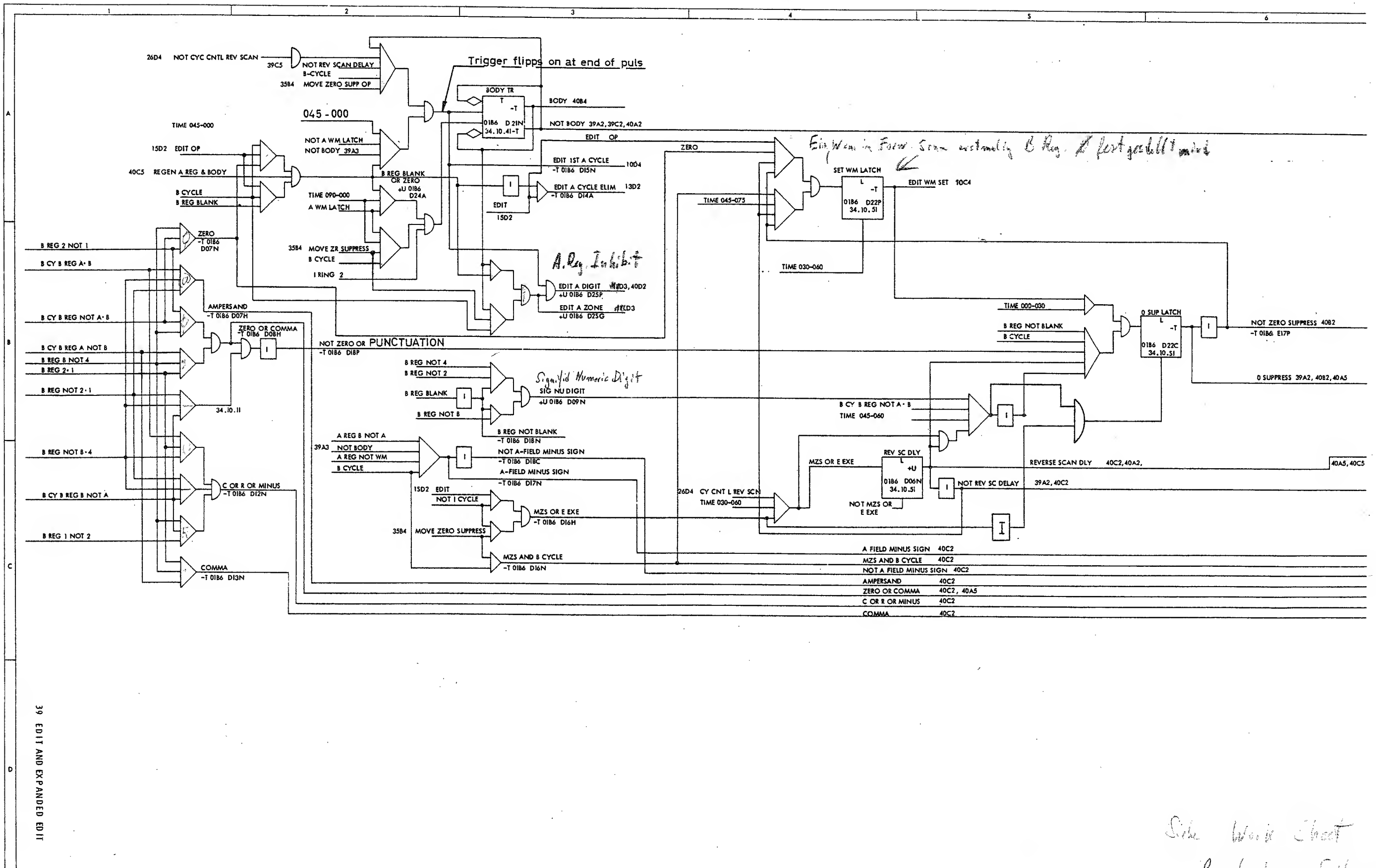
Compare
36



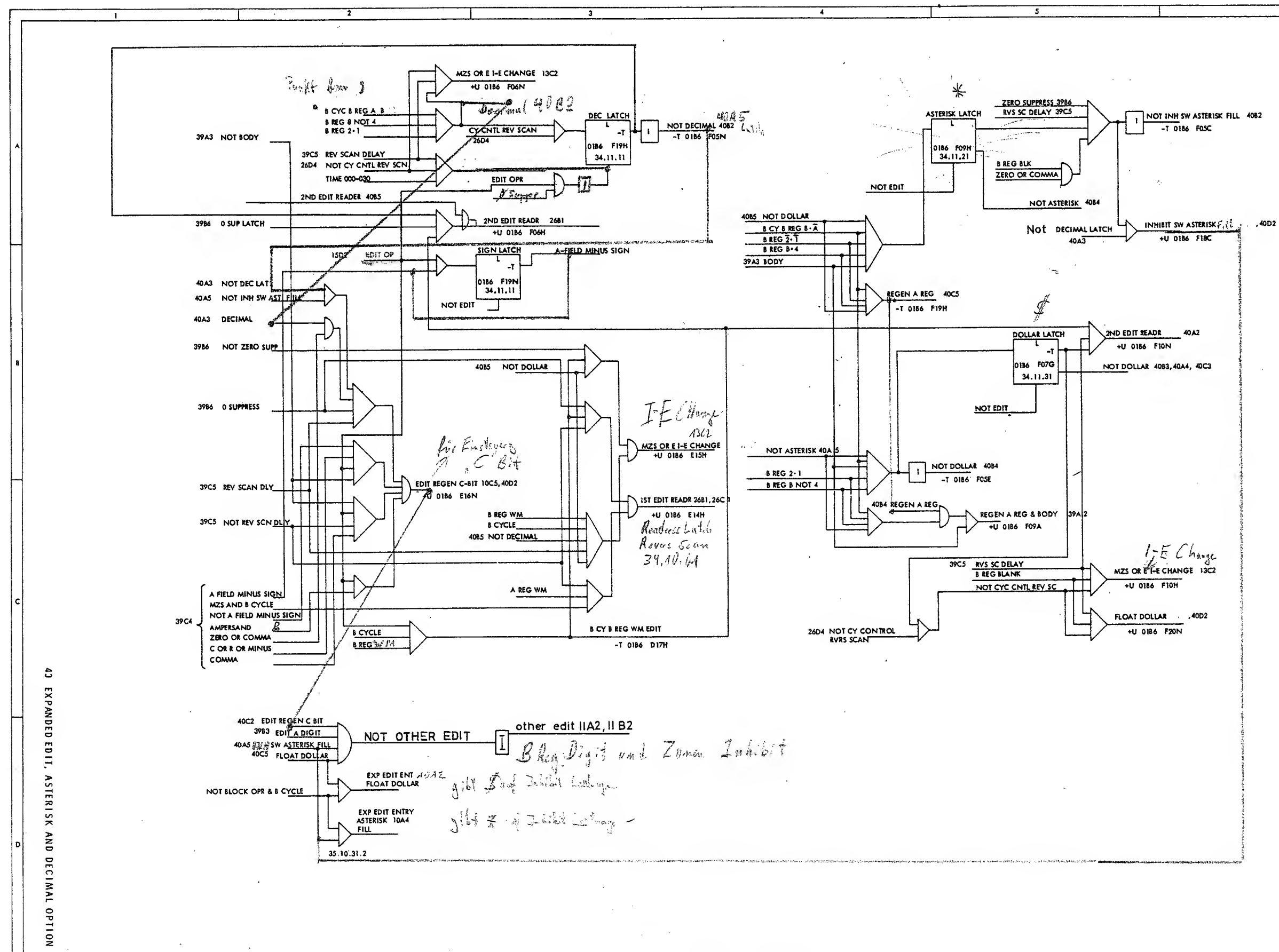
TEST POSITIVE
34.21.41.2
TEST POS HI-LO-EQ
36C1

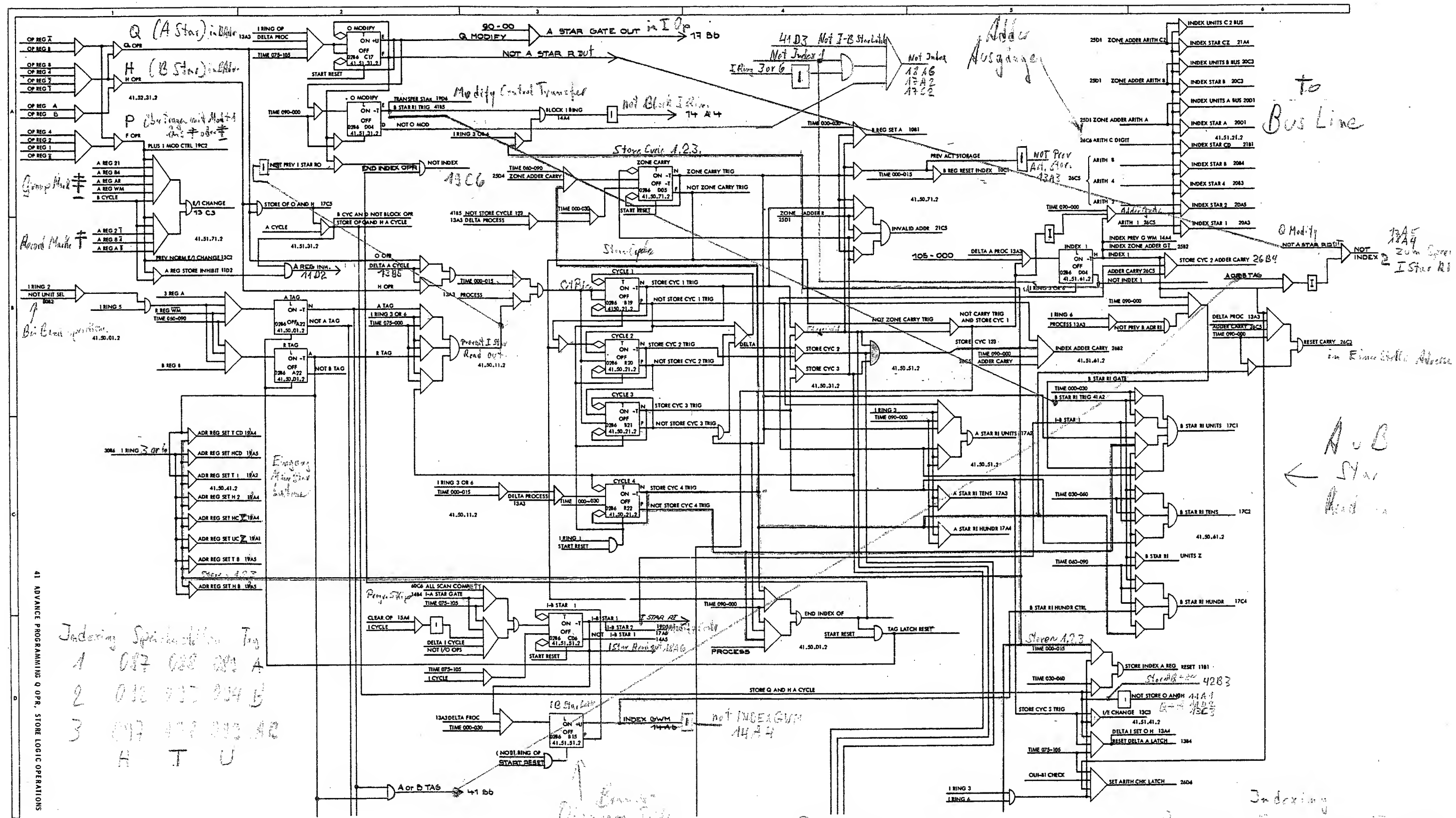
36 2-1





Siehe Work Sheet
 Beschreibung Seite 22
 Zusatz " " 35



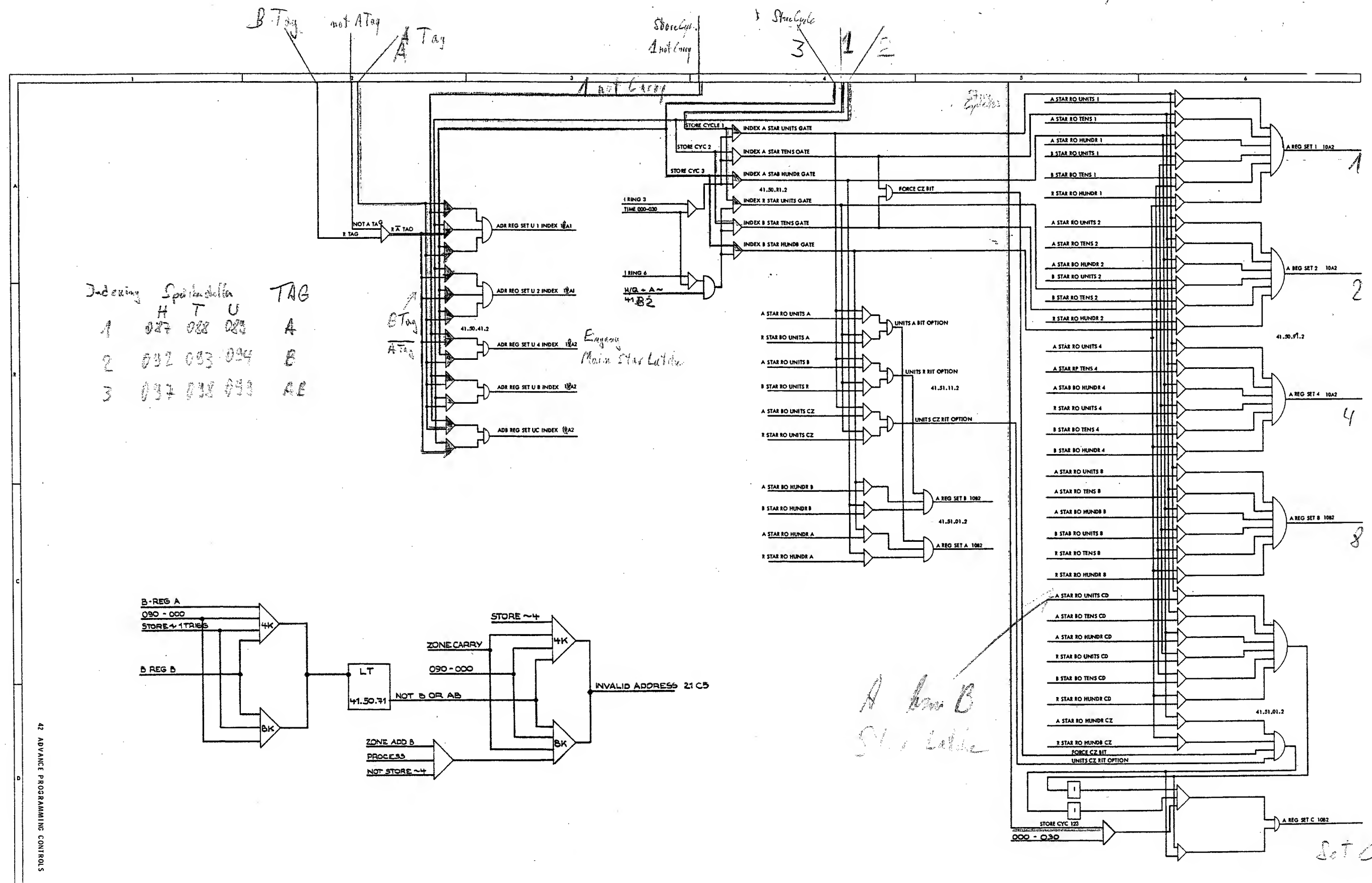


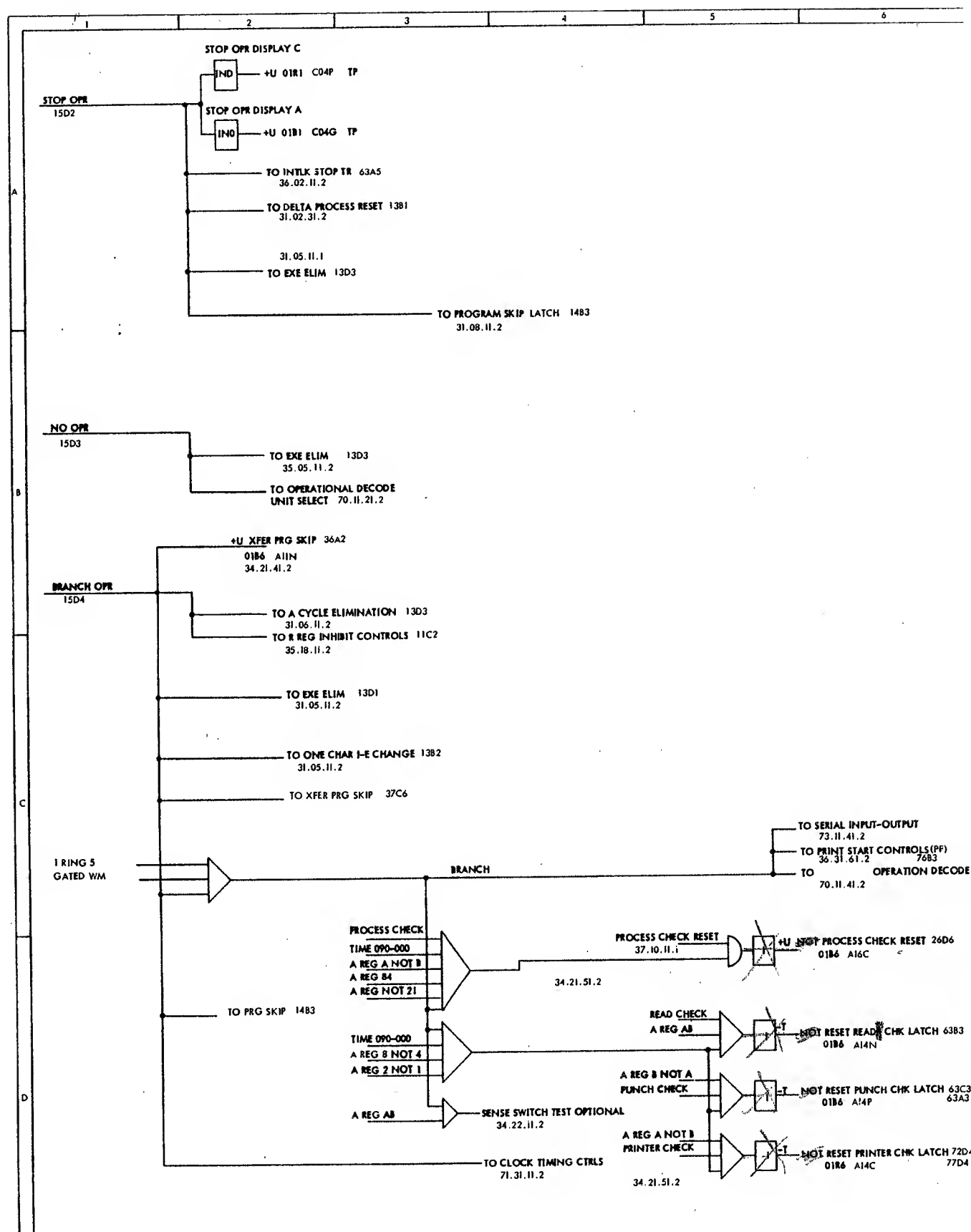
Indexing Spindles
 1 007 000 001 A
 2 010 000 004 B
 3 007 000 000 AR
 H T U

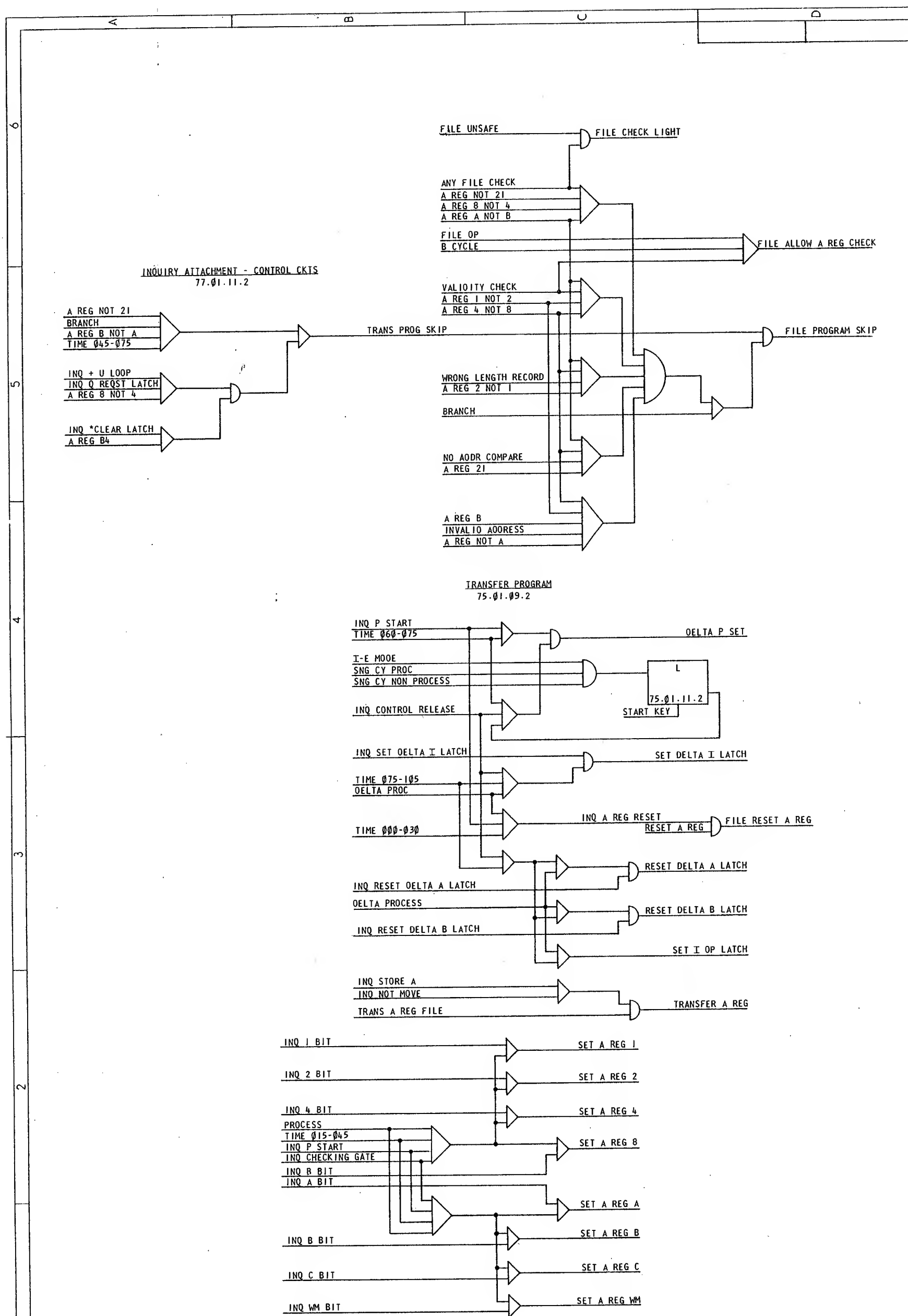
Diagram 30

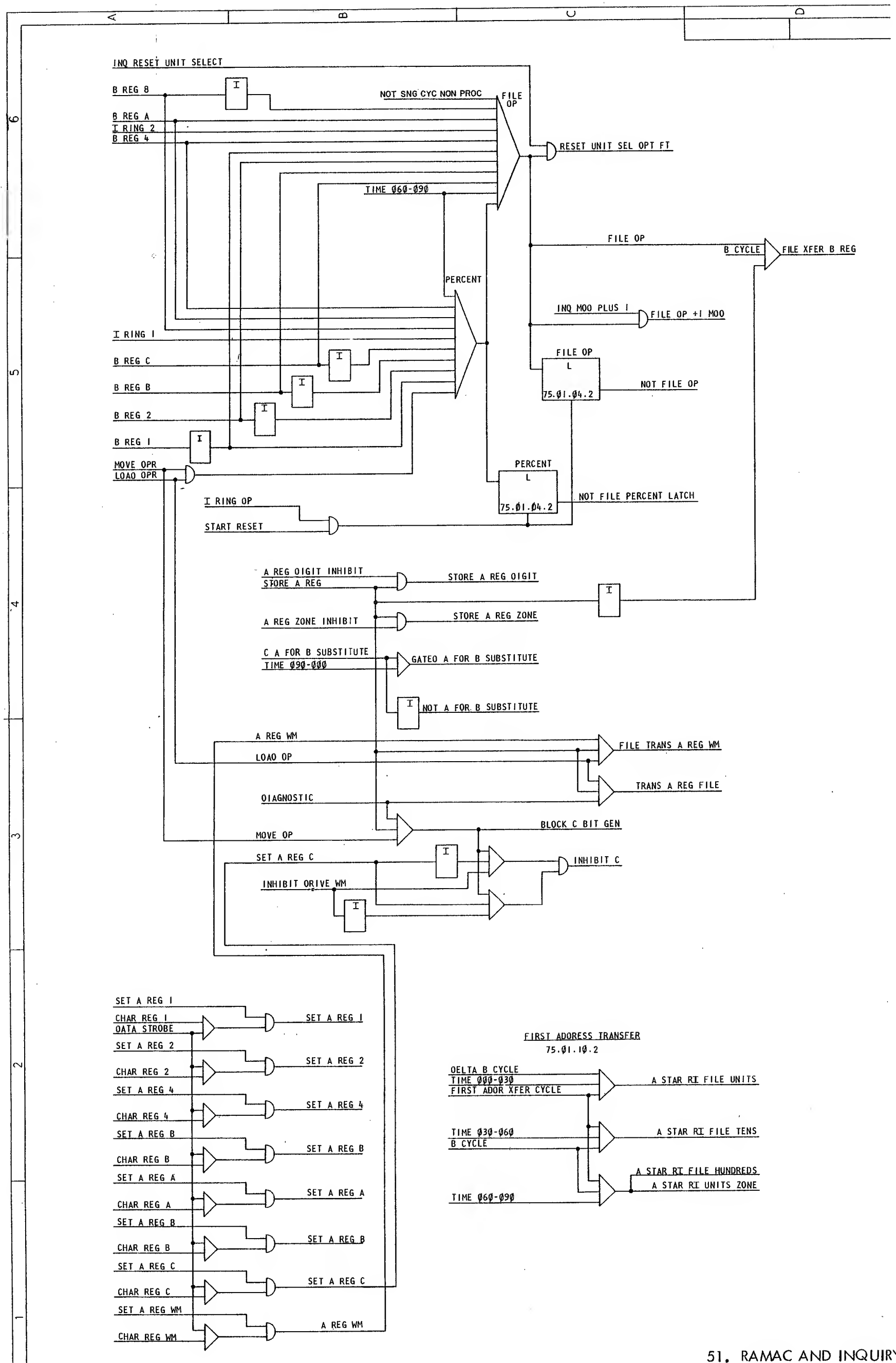
Diagram 31

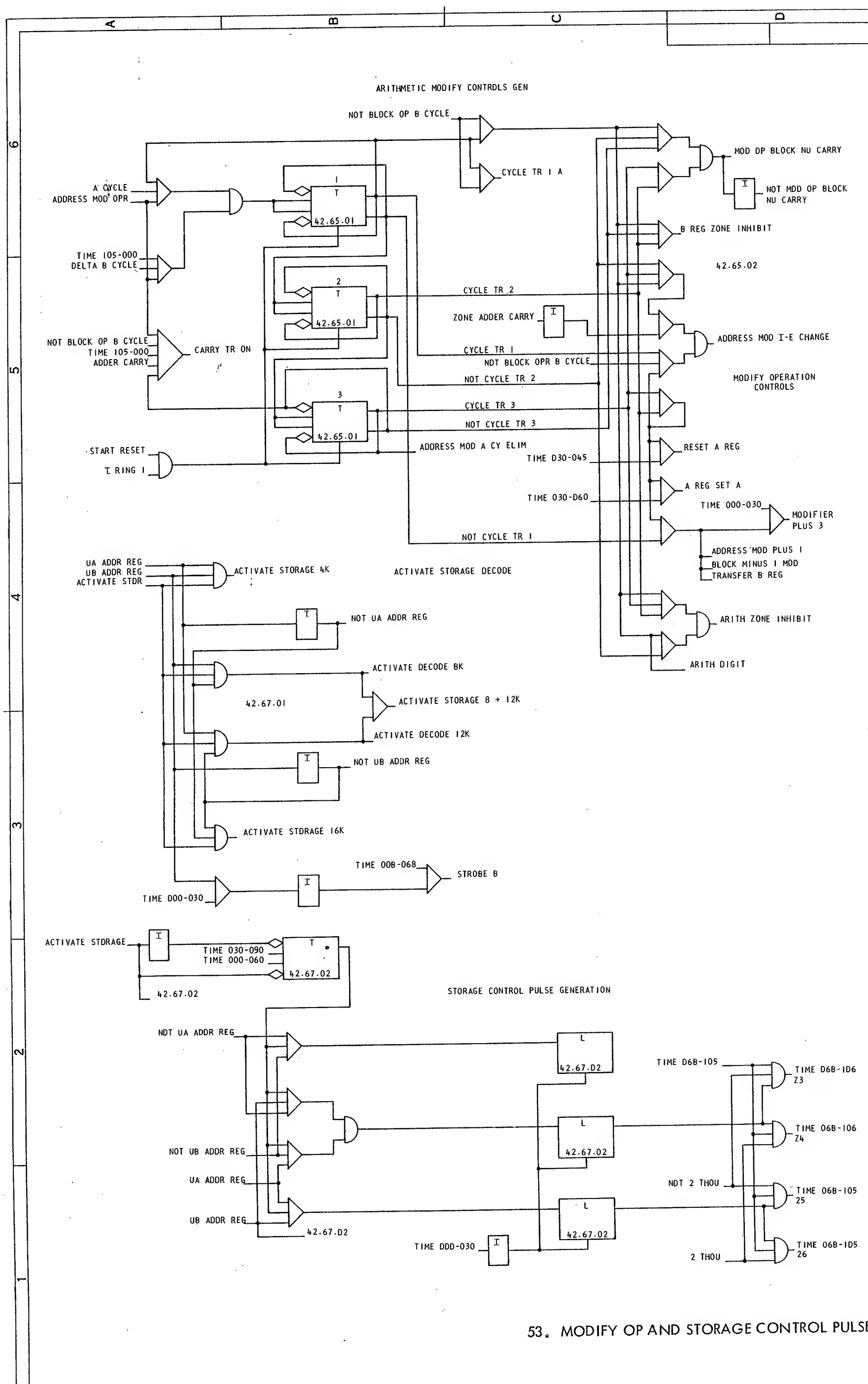
Diagram 32



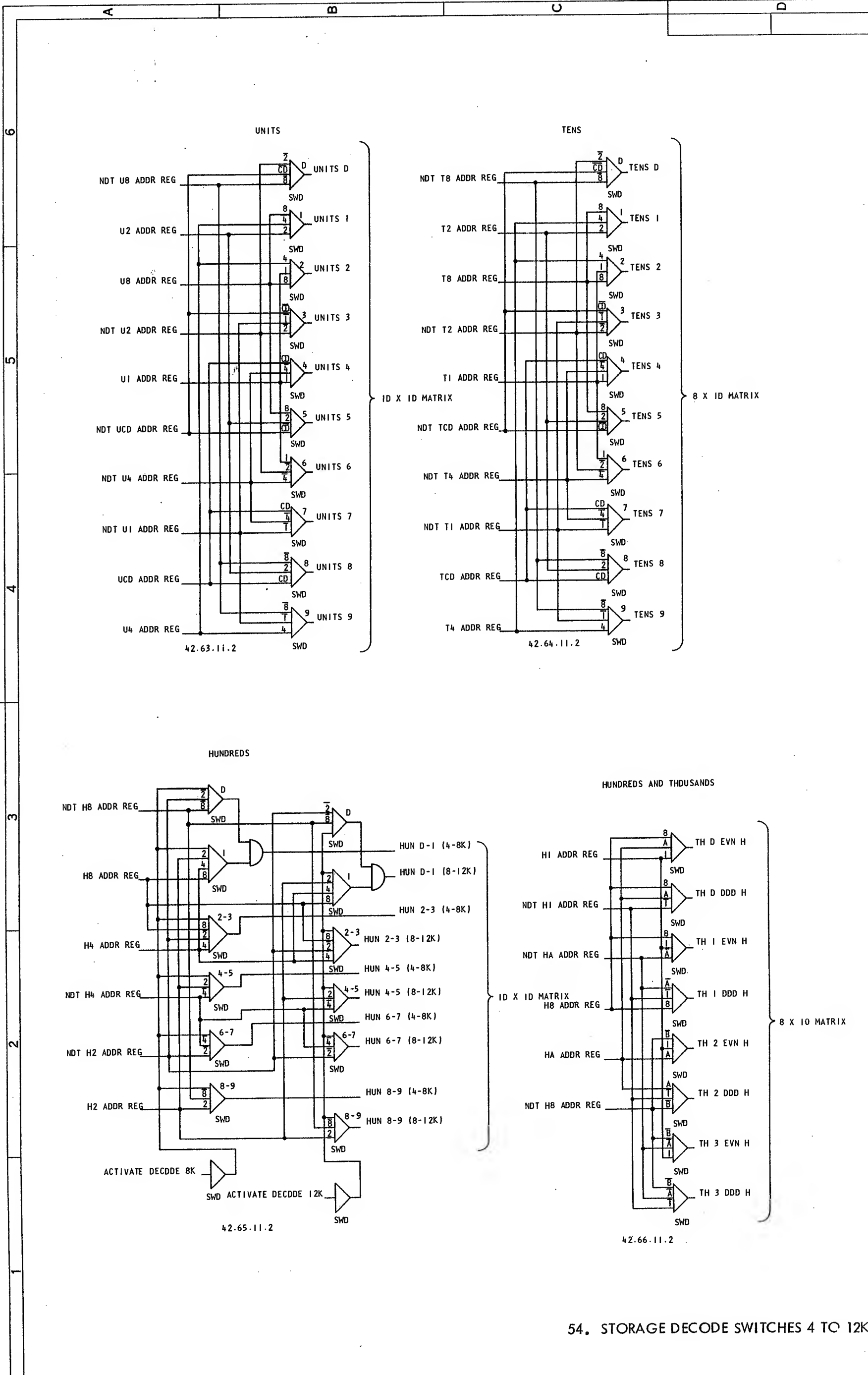




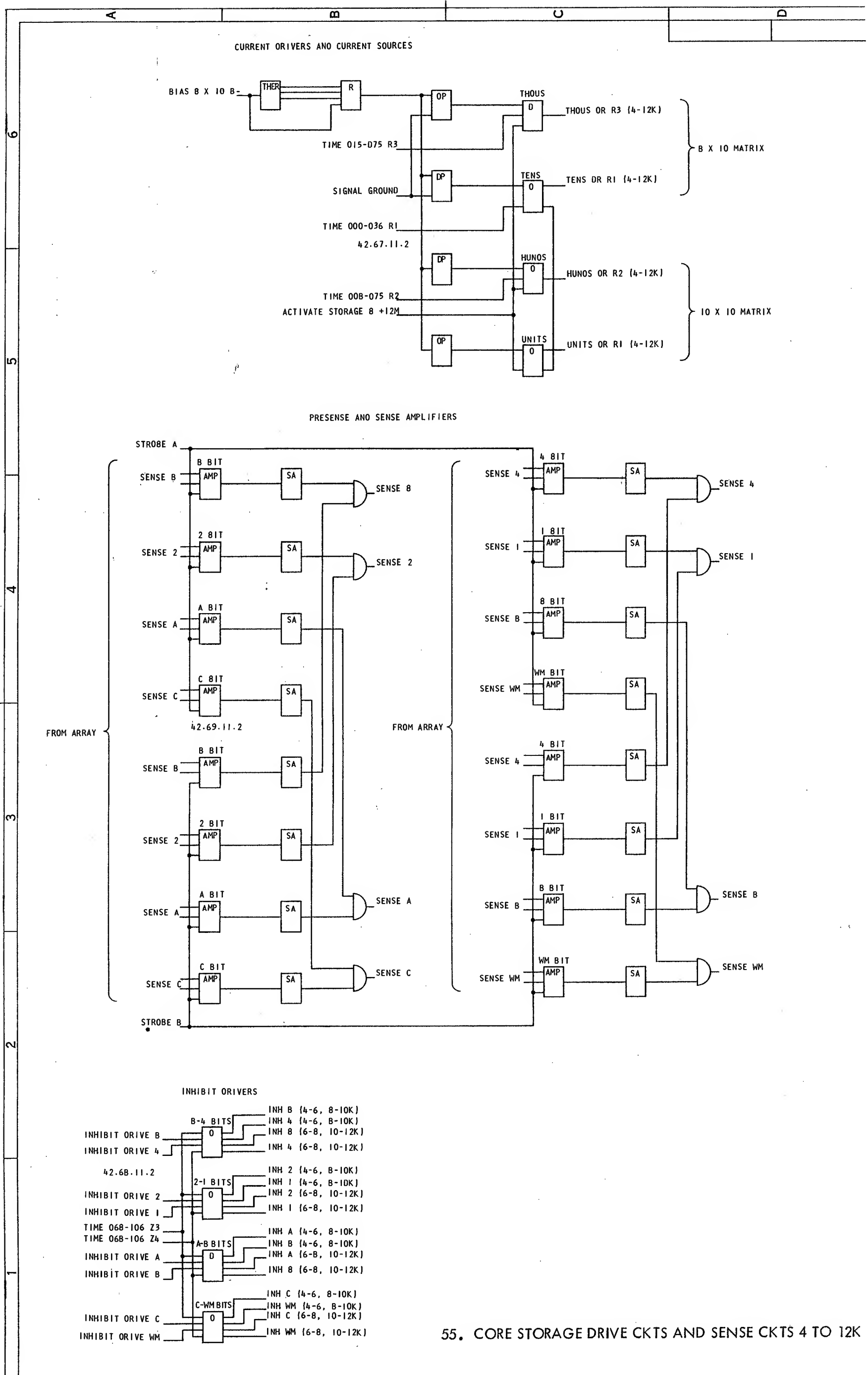




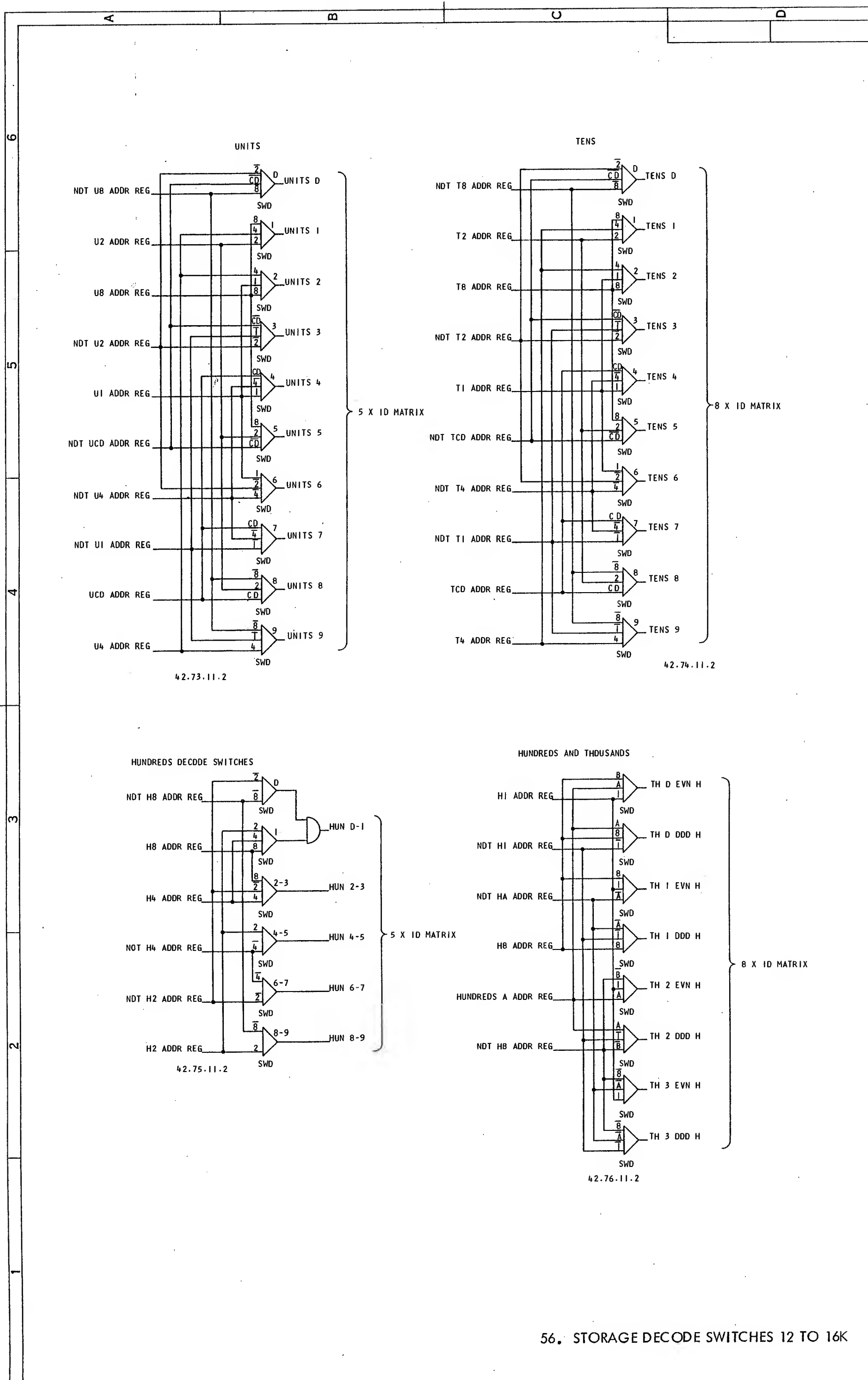
53. MODIFY OP AND STORAGE CONTROL PULSES



54. STORAGE DECODE SWITCHES 4 TO 12K



55. CORE STORAGE DRIVE CKTS AND SENSE CKTS 4 TO 12K



1	2	3	4	5	6
---	---	---	---	---	---

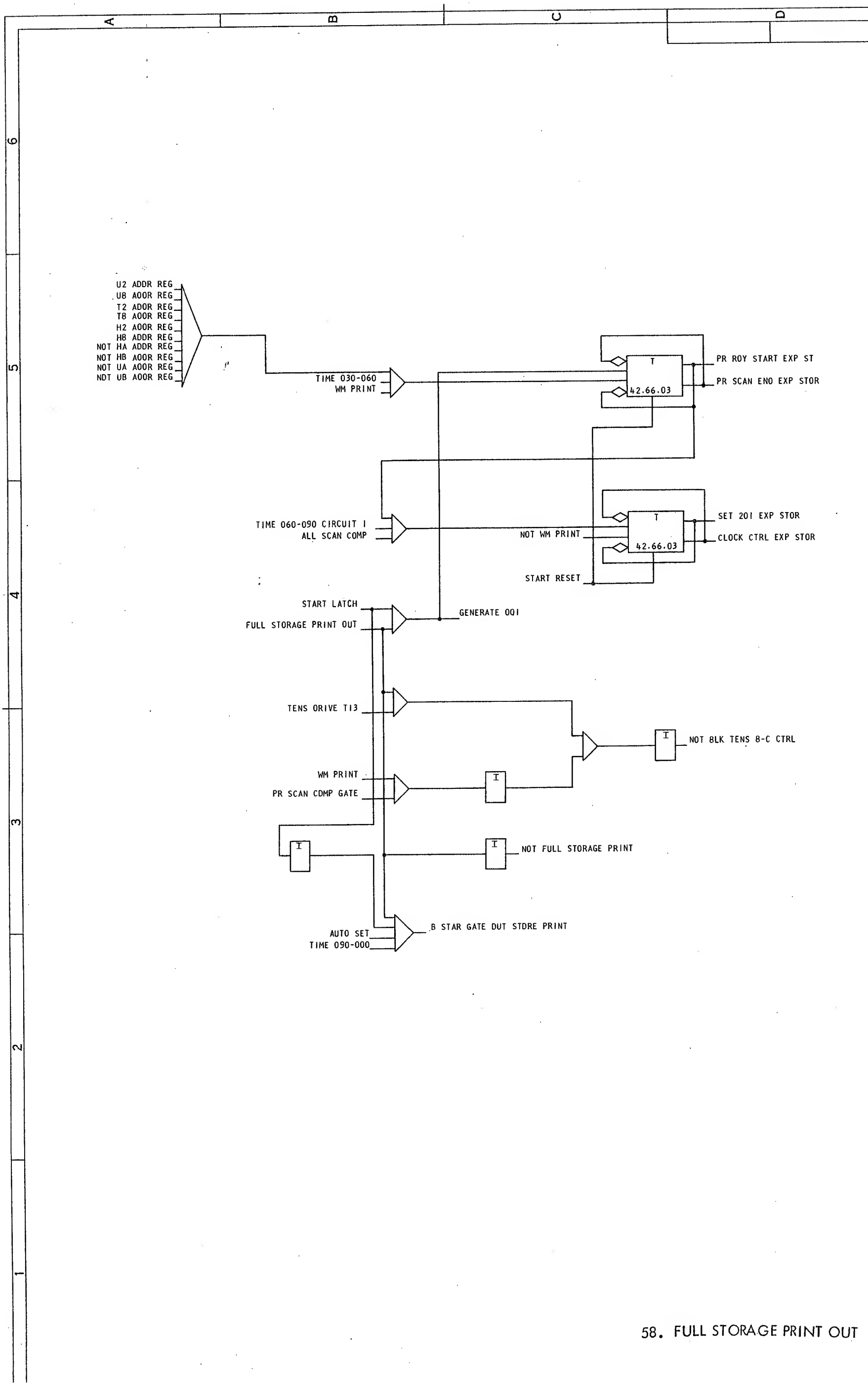


1	2	3	4	5	6
---	---	---	---	---	---



1	2	3	4	5	6
---	---	---	---	---	---

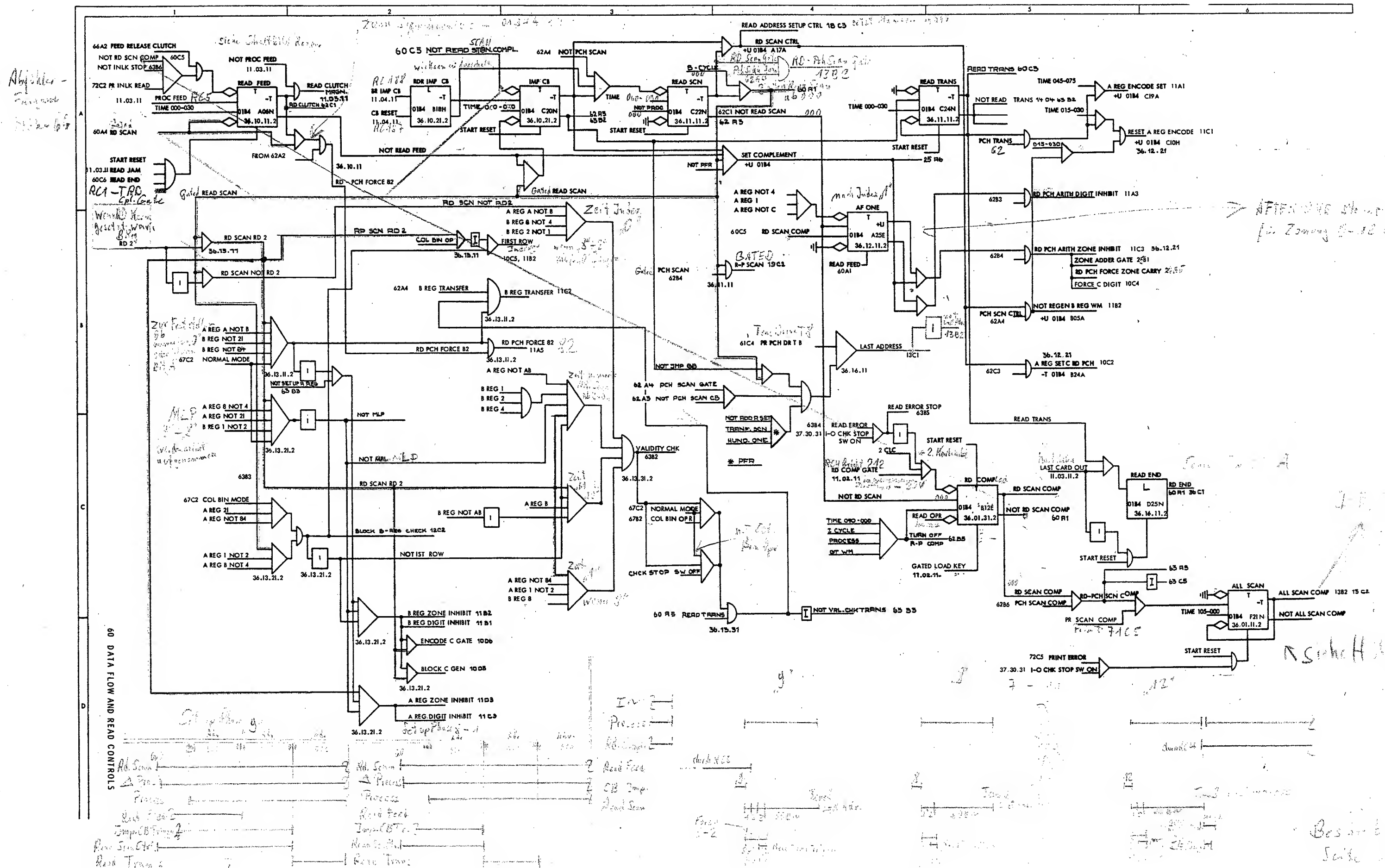


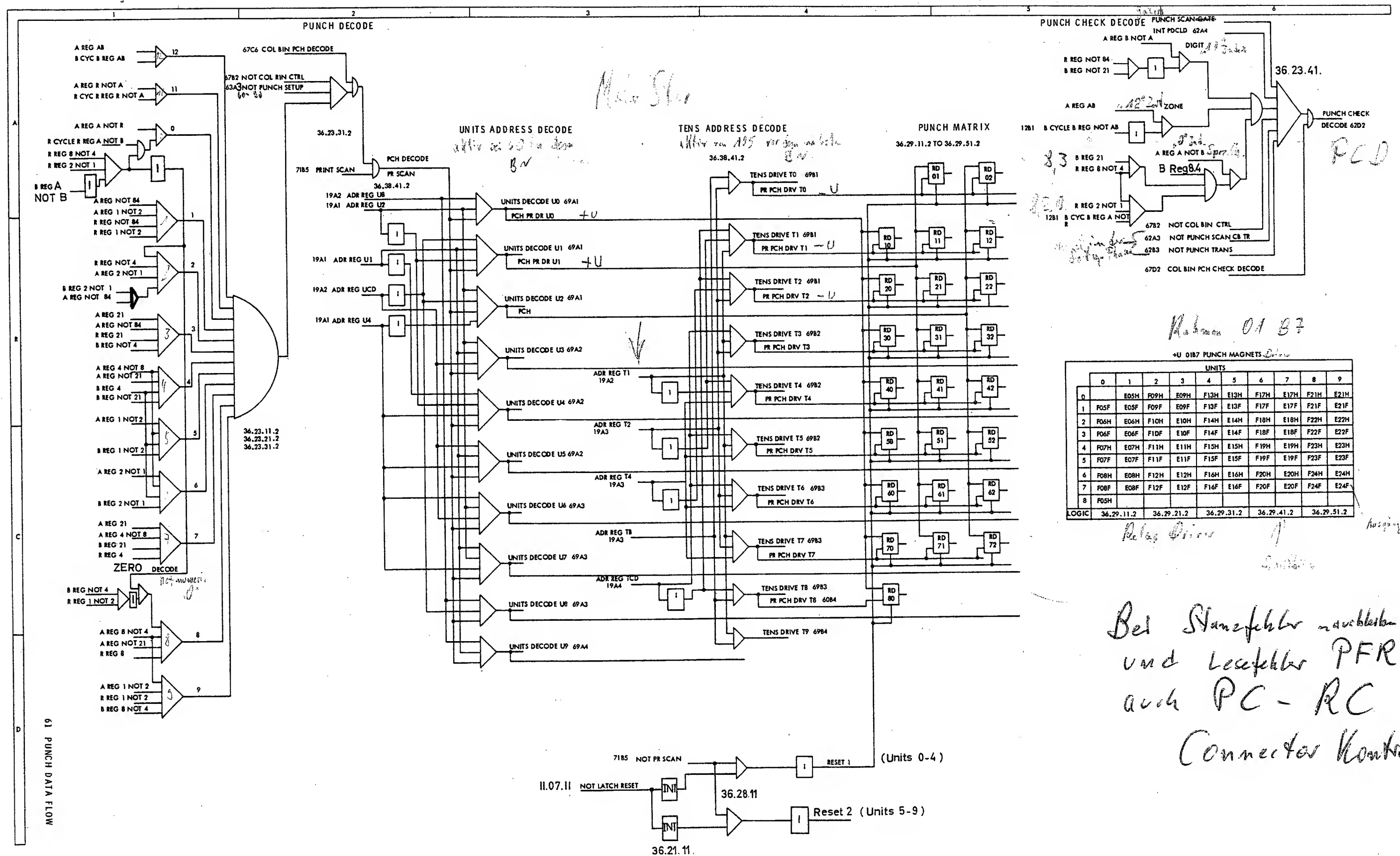


58. FULL STORAGE PRINT OUT

Lade Tabelle:




14E9	1)	Lade Taste \rightarrow Load Latch
15E3+6	2)	Op. Register Reset + Set A' (Read Op.)
69E7	3)	Read Scan Compl. \rightarrow Avc
1A3	4)	Set ΔB -Latch und Reset ΔA I Latch
14D4	5)	Set WM in 001
40E2	6)	Reset WM in 002-020
11.3	7)	Set Memory to 001
60E3	8)	Read Scan Compl. erst im 3. Zuf. Gang
14D4	9)	Load Latch \rightarrow Bus.









Bei Stanzfehler nachfolgende Logik
und Lesefehler PFR
auch PC-RC
Connector Kontrolle

PFR Hole 64

Rd. Scan Punch Scan   ^{RD2 RD}  ^{B.Reg.P.} Transfer Scan
 läuft immer nach 13. Scan und
 überprüft von 001-180 nach 101-180









X	X		—	Y Planes →	Y Planes
X	Y		—	Y Planes →	X Planes
X	X		—	Y Planes →	Y Planes
X	Y		—	Y Planes →	X Planes

Read Scan mit X Gate und PFR B₀ liest in Y Planes 001-080
 Read Scan mit Y Gate und PFR B₀ liest in X Planes 001-080

Punch Scan mit X Gate und P.C.D. liest in X Planes 101-180
 Punch Scan mit X Gate und P.C.B₀ liest in Y Planes 101-180
 Punch Scan mit Y Gate und P.C.D. liest in Y Planes 101-180
 Punch Scan mit Y Gate und P.C.B₀ liest in X Planes 101-180

In der Station PFR + P.C.D = P.C.B₀.

Falls durch Fehler im 13. Scan noch regeneriert wird, sorgt im Transfer Scan X oder Y Select (62C5) dafür, daß von den B.Reg. Check Laticken nichts auf die Jackbit Leitungen kommen kann.

Kartennummer	V. Gang	RD2 2.B ₀	RD1 1.B ₀
1	1		
8, 3, 12	2		
3	3		
4	4		

Row

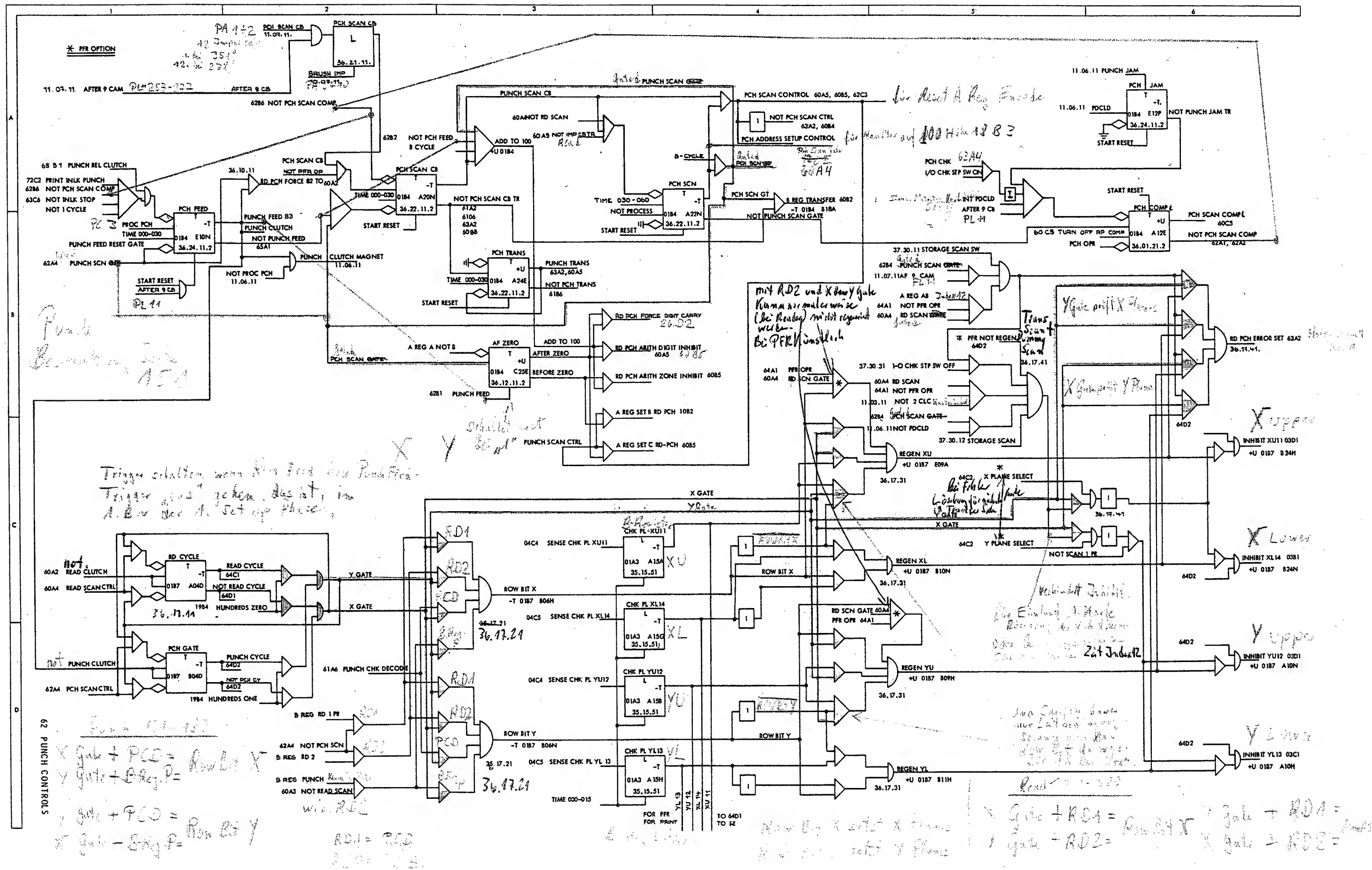
Agg.	1 X	2 Y	3 X	4 Y
XU	1	0	1	0
XL	1	0	1	0
YU		1	0	
YL		1	0	1

X Gate + RD1 = Row Bit X
 Y Gate + RD2 = Row Bit Y

Y Gate + RD1 = Row Bit Y
 X Gate + RD2 = Row Bit X

ROW Bit X setzt X Planes
 ROW Bit Y setzt Y Planes

U_{upper} 1X
 L_{lower} für jede Lechung



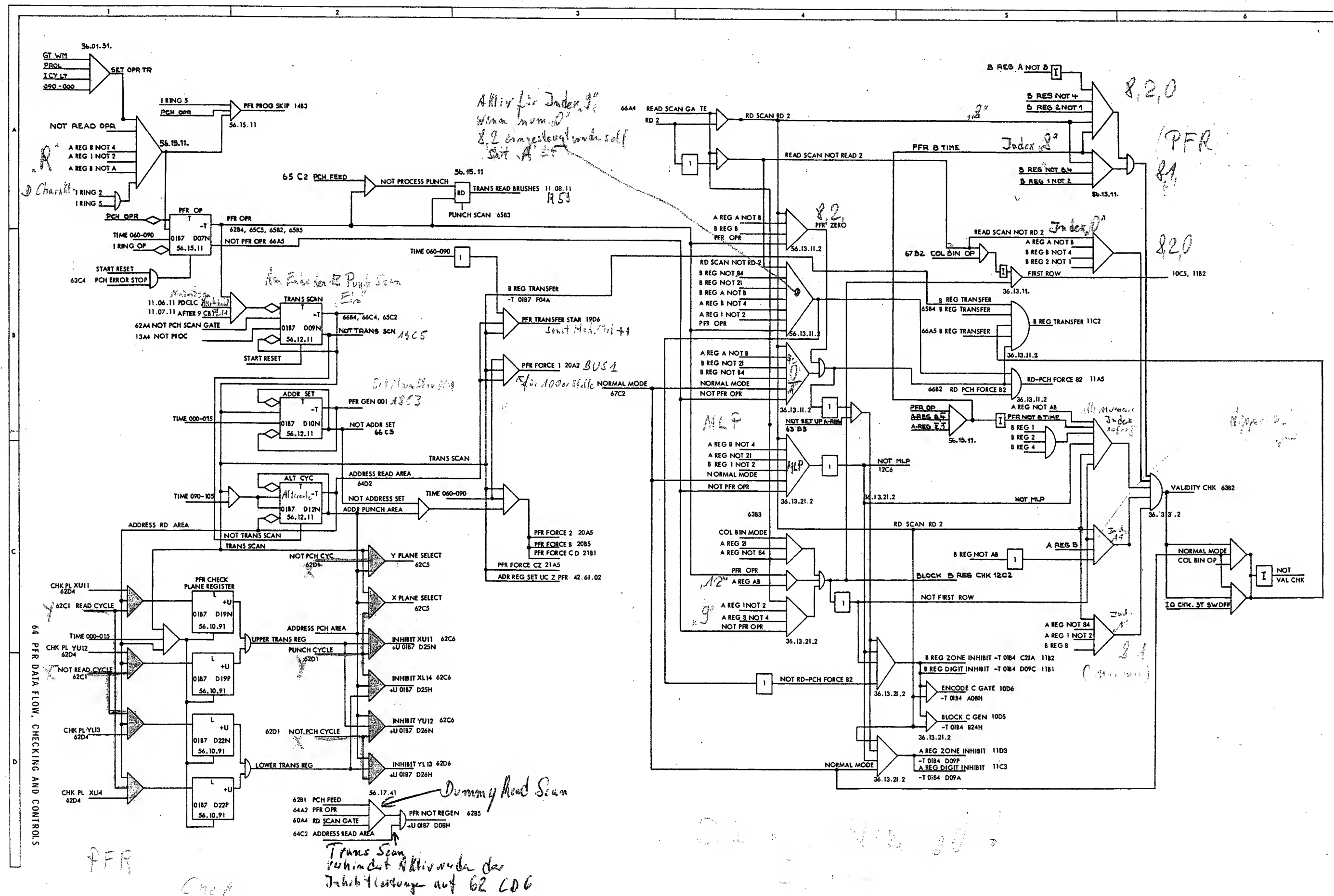
Letzter B des 13 Punch Scan
 Transfer Scan
 B B B B B B B B B B 10p.

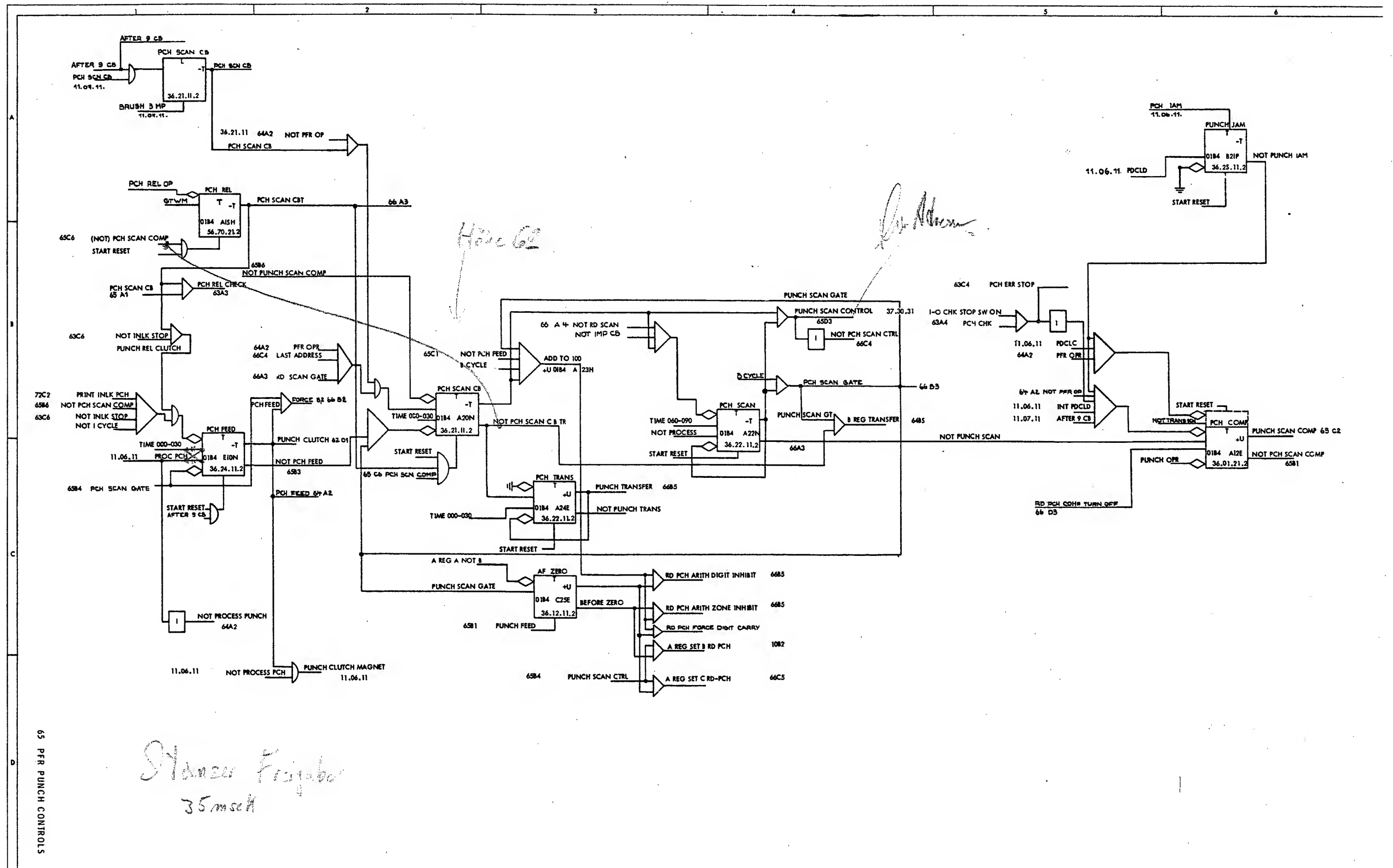
Main Star	180	001	101	002	102	003	→	179	080	180			
B. Star	181	101	002	102	003	103	→	080	180				
13 Delta Process	2												
Process	2												
66C4 Last Adress	1												
65B4 Pch Scan Trigger	2												
4B1 Trans Scan Tr.													
16B4 RD-Pch Sc. Gate	2												
4B2 Adr. Sel Tr. Gen. 001													
64C2 Alter. Cycle Trigger		Adr. Recl.	Adr. Recl.	Adr. Recl.				Adr. Recl.					
64B3 PFR Transf. Star. No Modif.													
4B3 PFR Force Hundr. 1													
" " 82, C													
5B6 Punch Compl. Tr.													
6D6 ALL Compl. Tr.													
13 I/F Change													
Delta I Latch													
I ~ Latch													

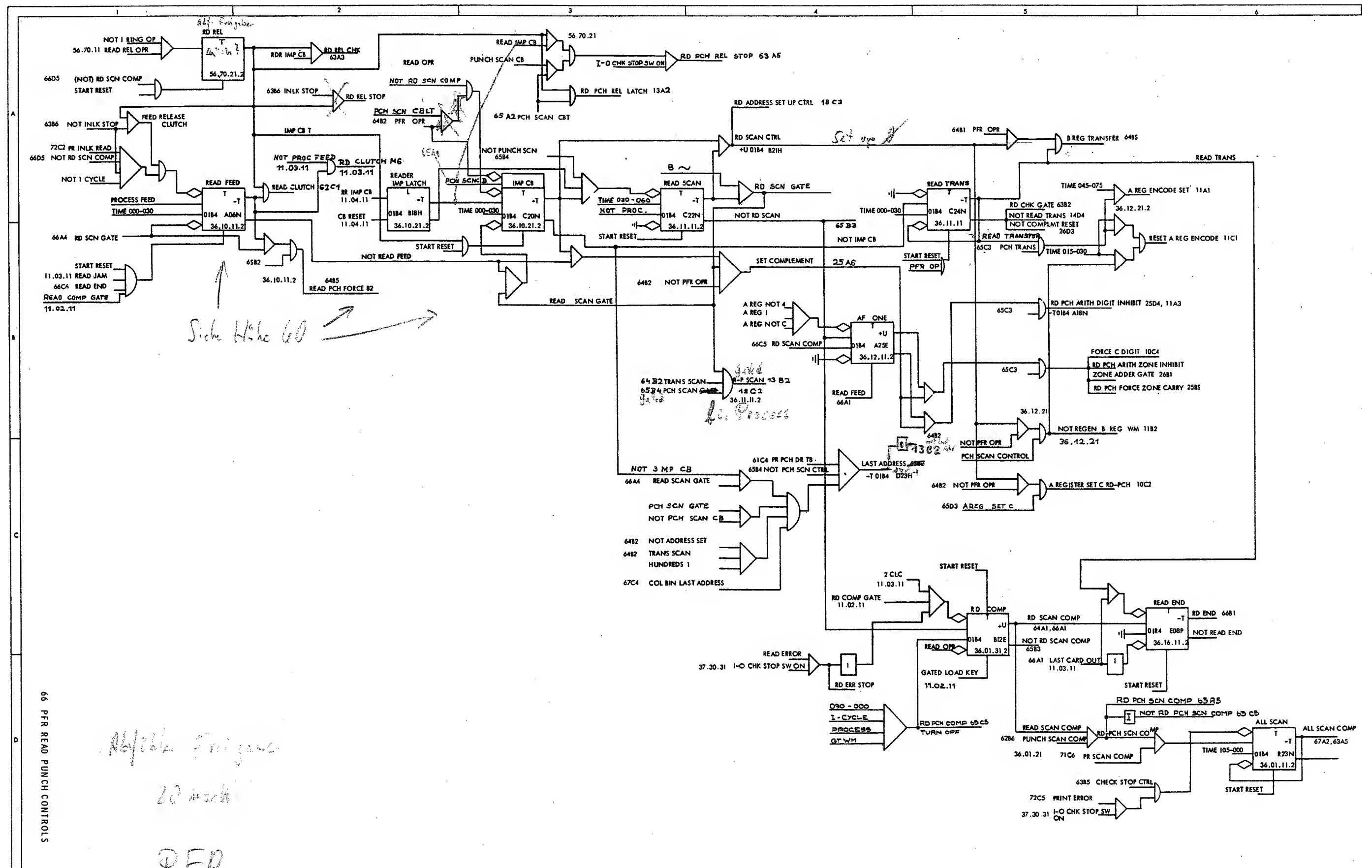
19D5 Hundr. Kann nicht modifiziert werden, da Not Trans Scan fehlt. 19D5

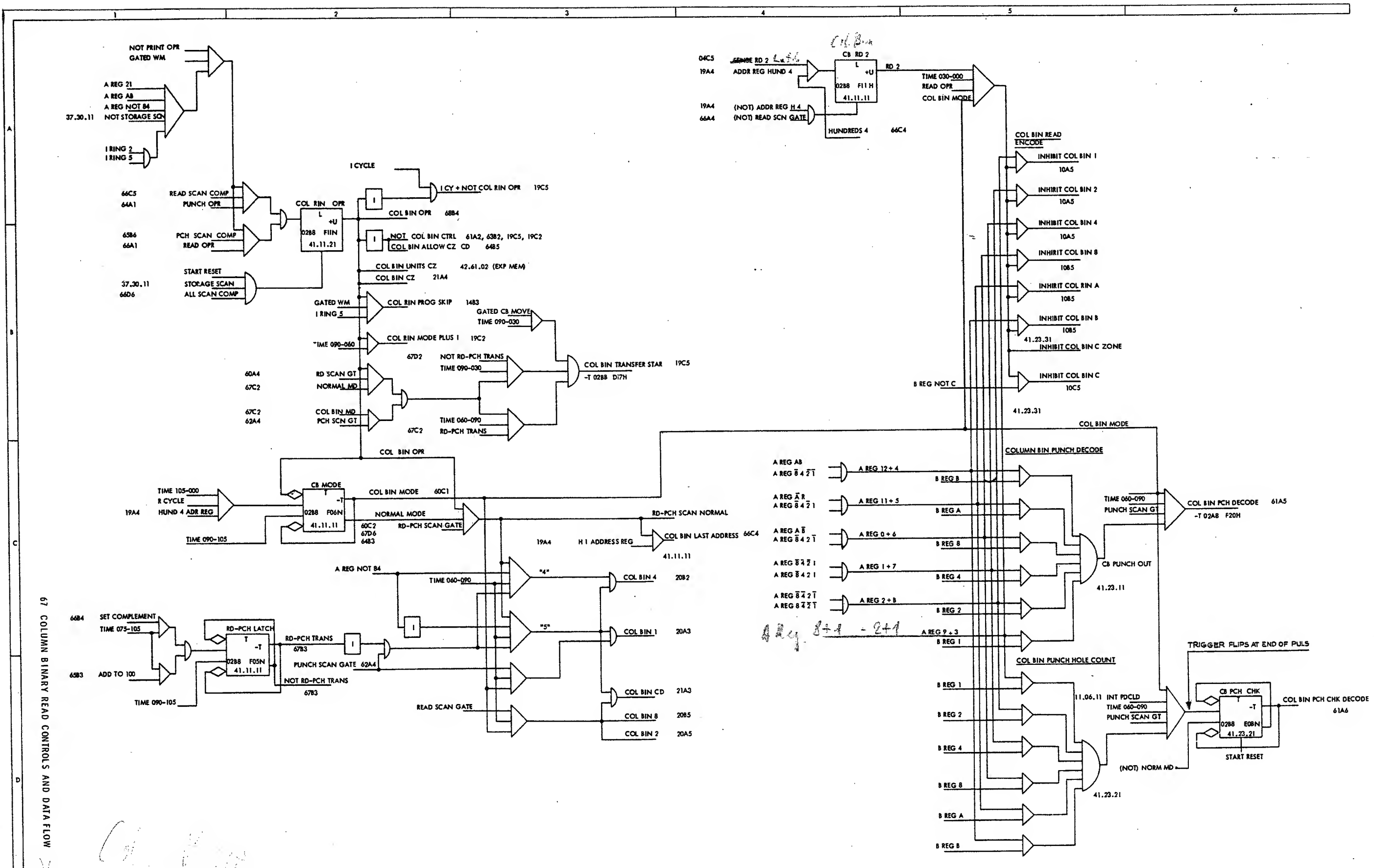
Bei Transfer Star immer B-Reg. Transfer für Daten

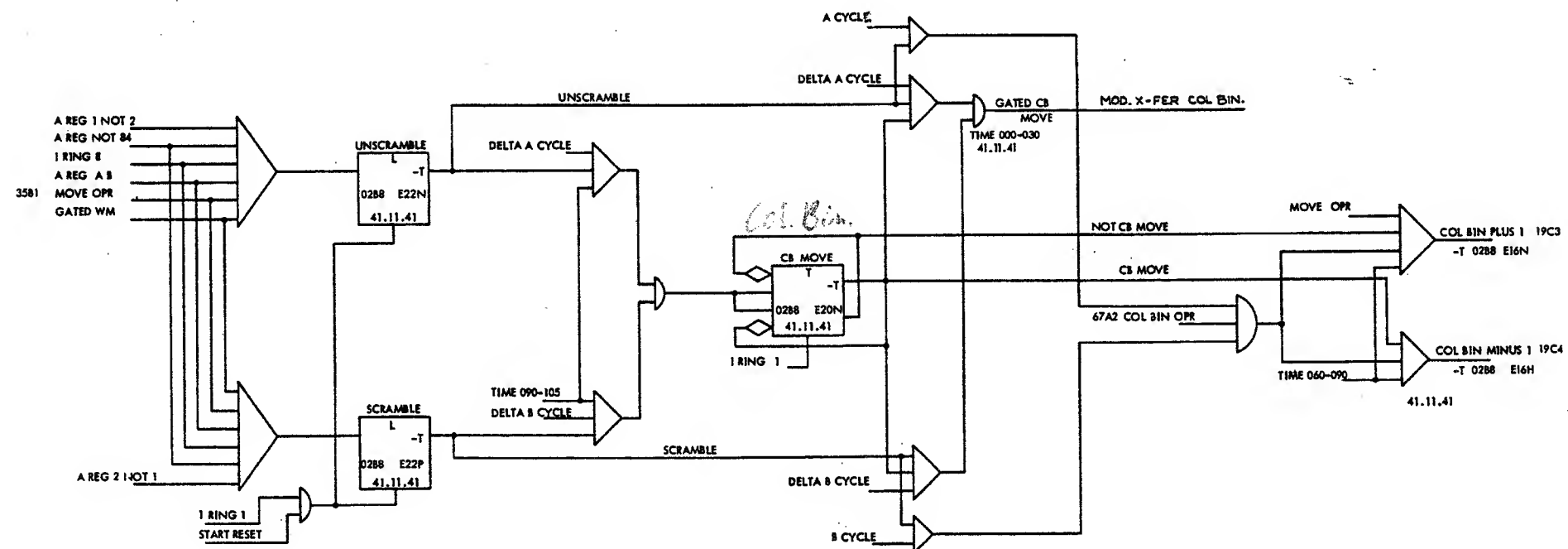
Upper = 1x
 Lower = für jede Lochung



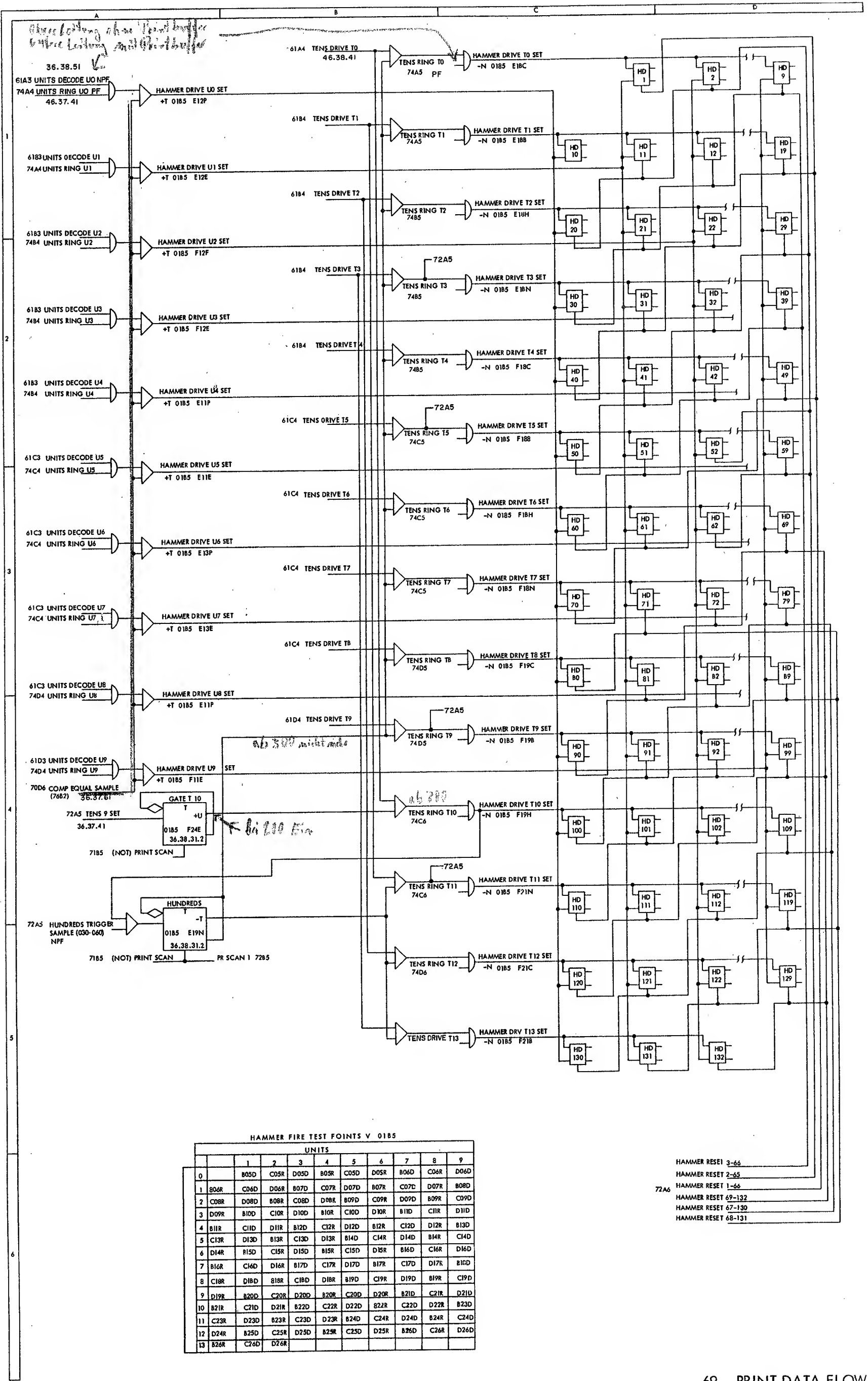


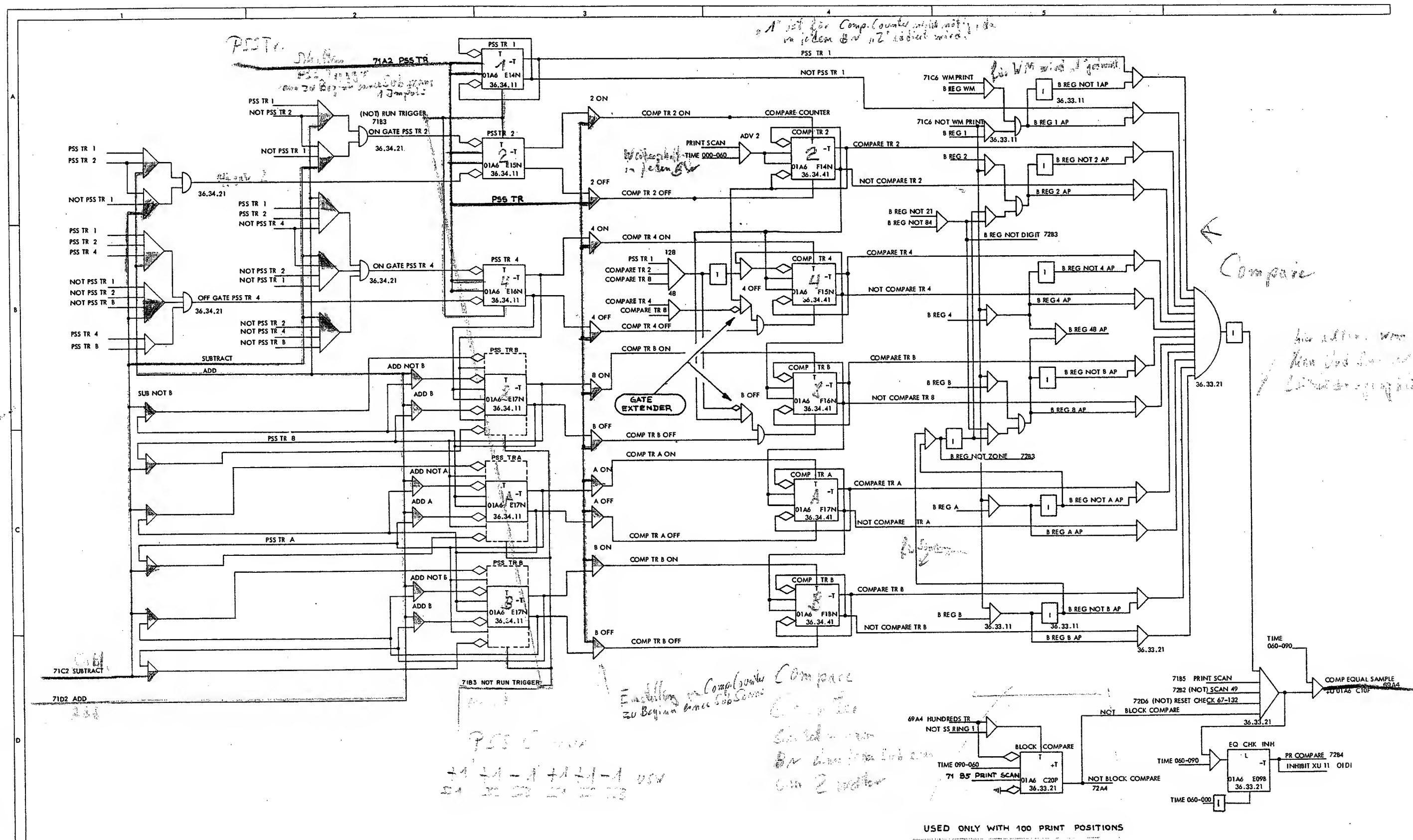




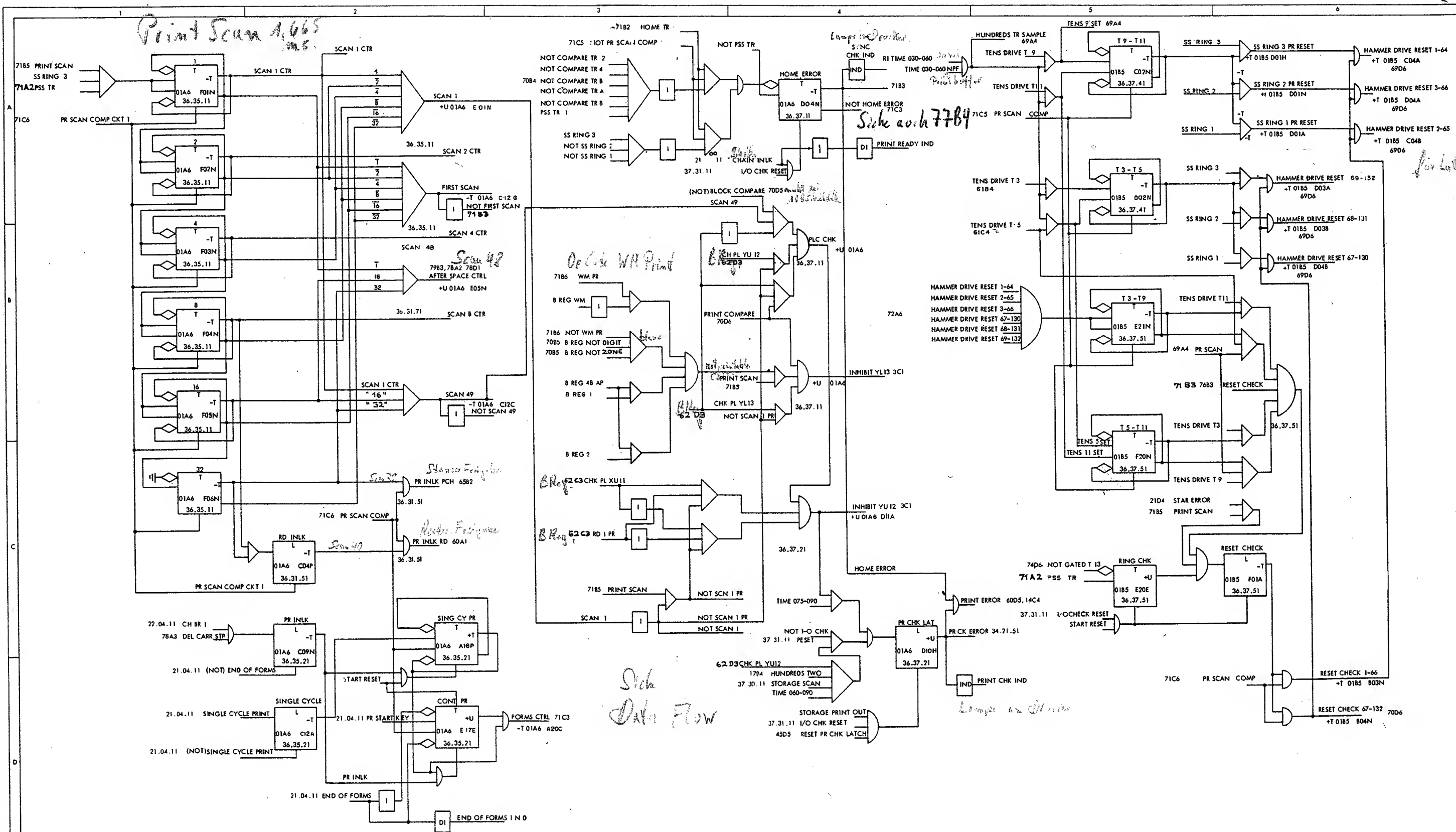


Col. Bin.

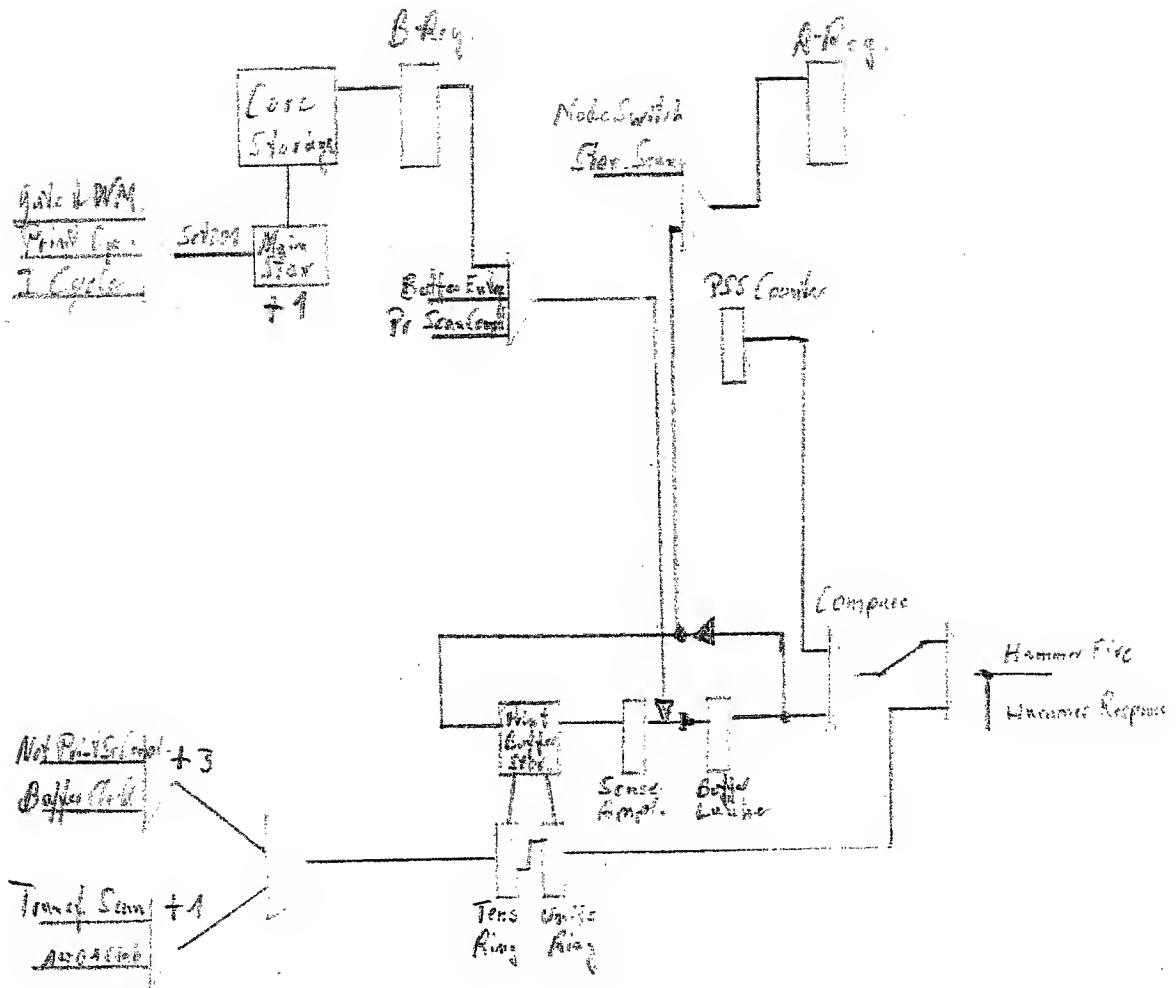




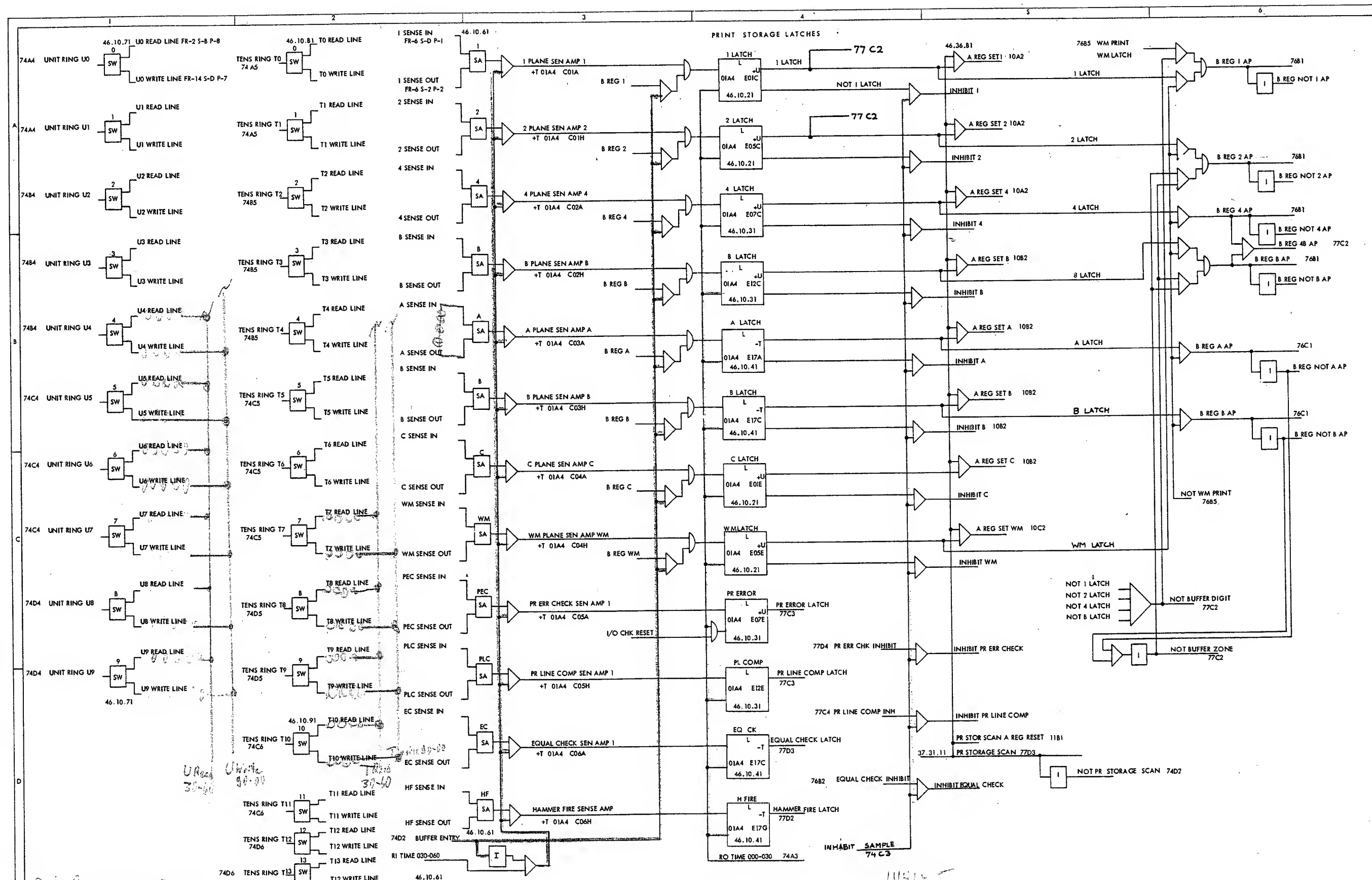
70. PRINT COUNTERS



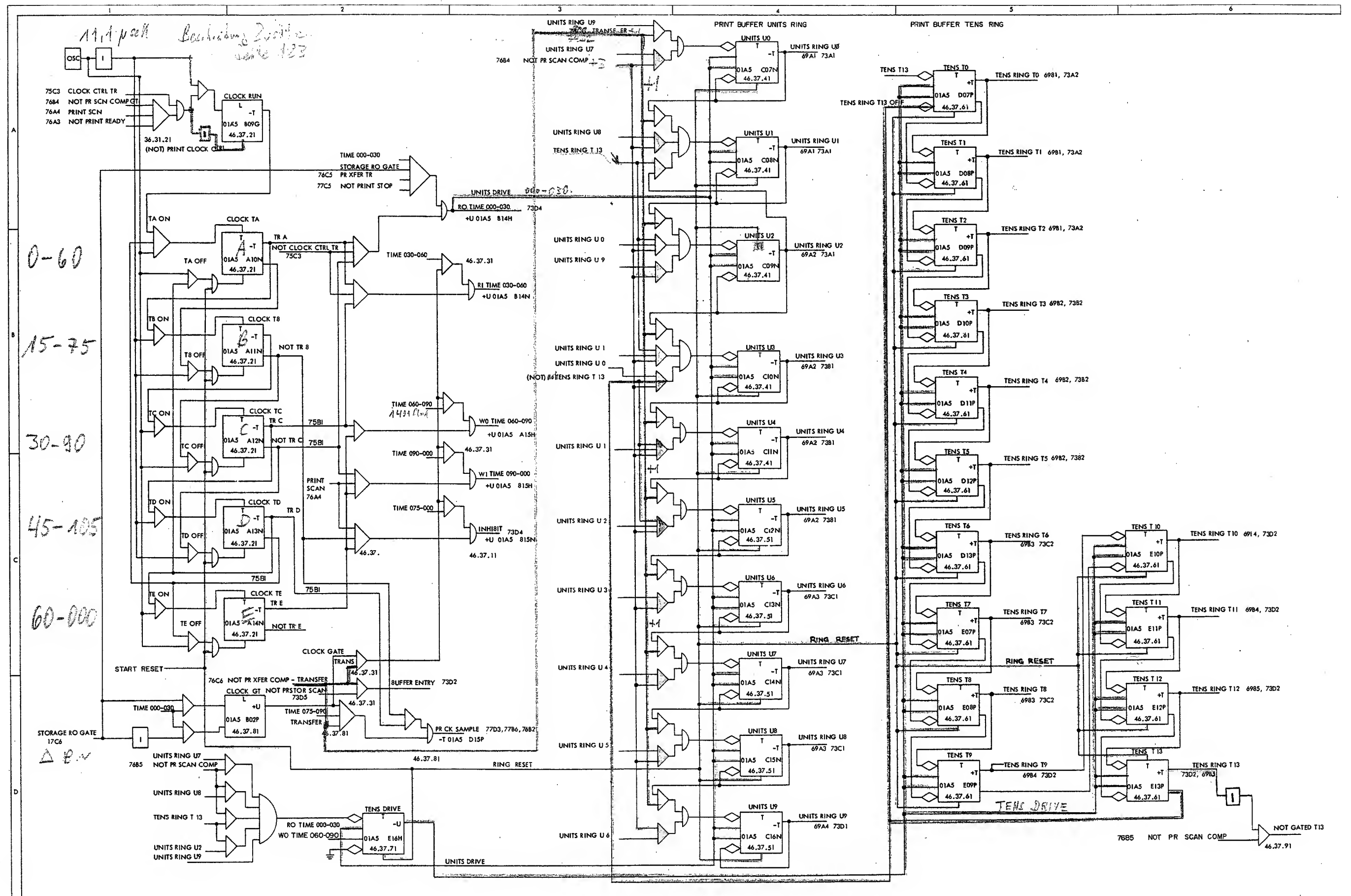
Data Flow Print Buffer

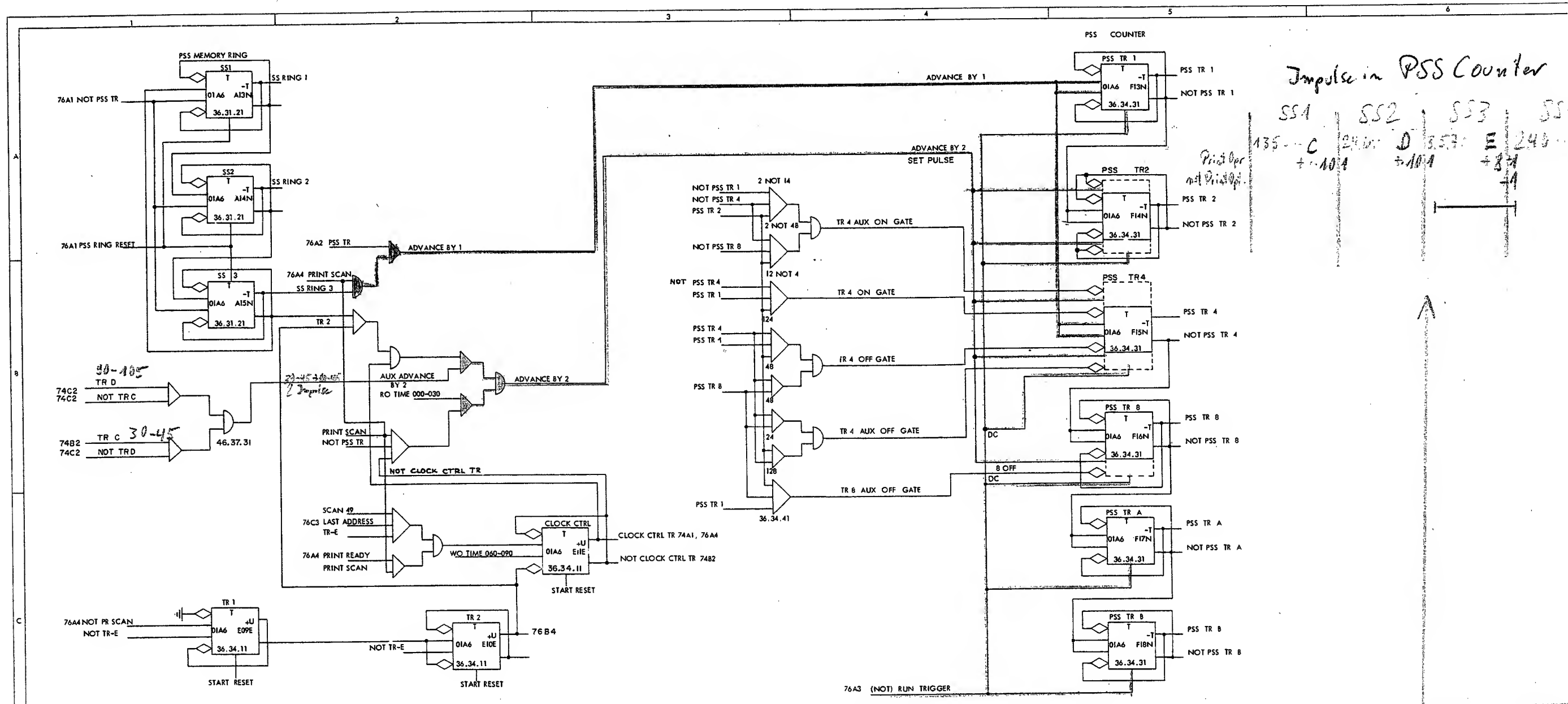


73. PRINT BUFFER STORAGE AND DATA FLOW



74. PRINT BUFFER RINGS AND CONTROLS

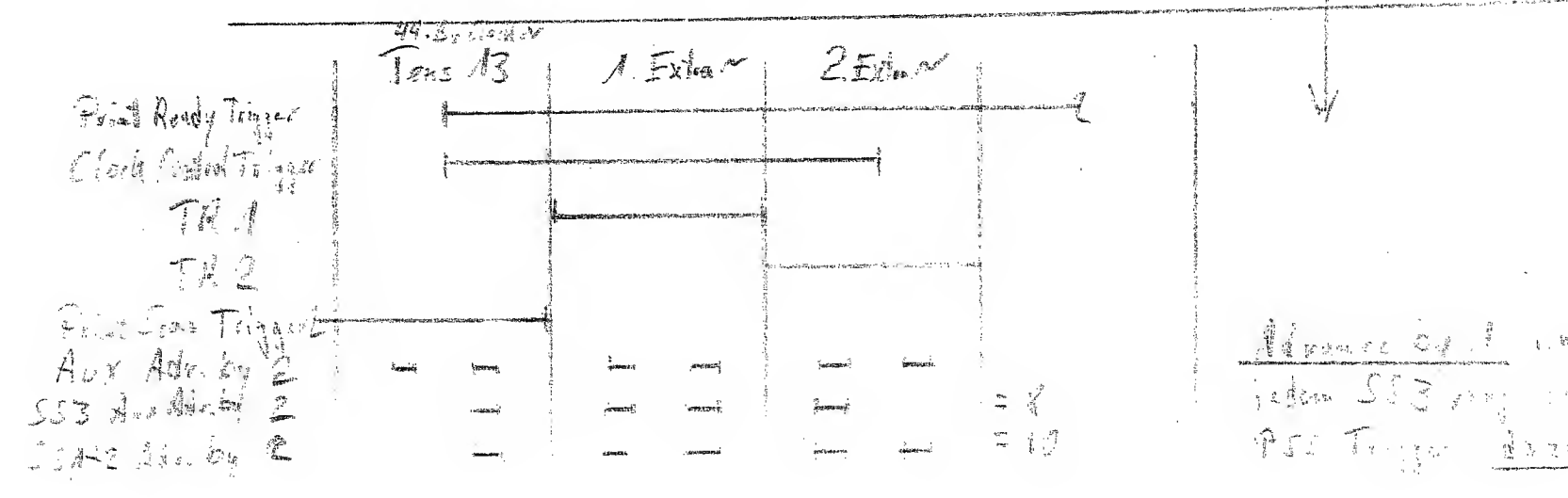


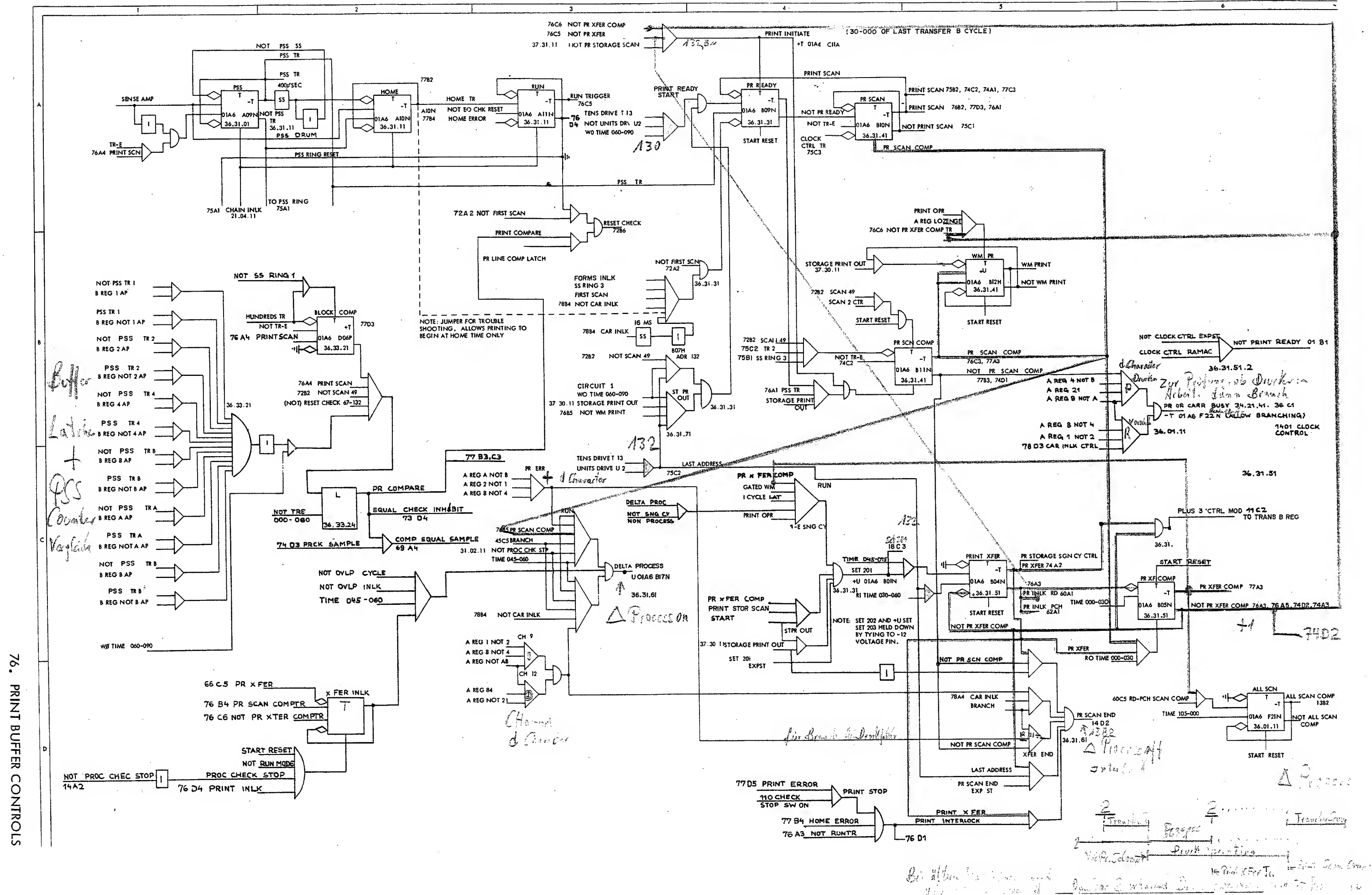


Impulse in PSS Counter

SS1	SS2	SS3	SS4
135 - C	240 - D	353 - E	243 - D
+1014	+1014	+814	+1014

Print Op not Print Op





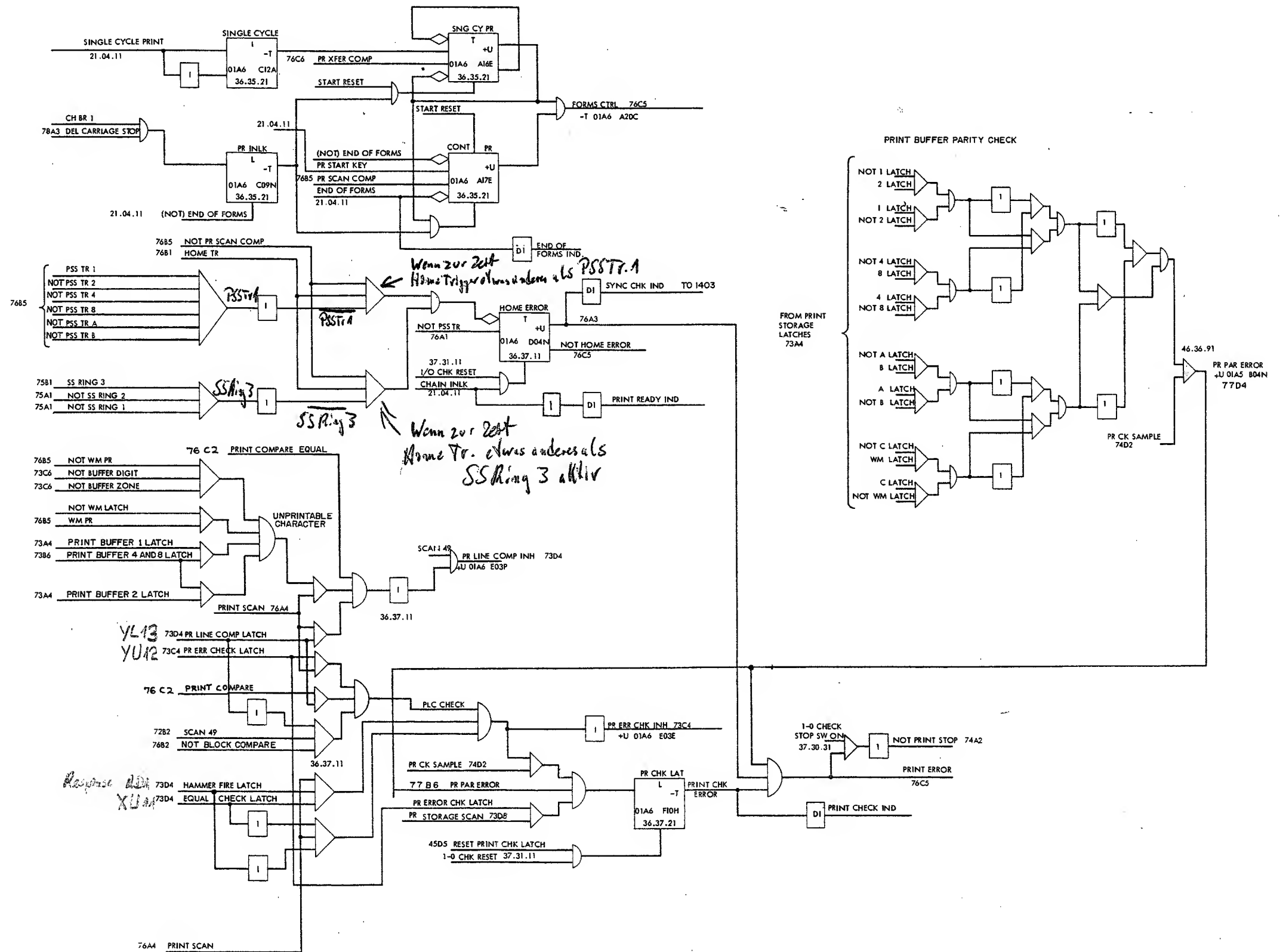
Connect 01A6/B02/N MIT 01A6/D17/F, BEI PF D04/B

PRINT SCAN 01
PRINT SCAN 02
PRINT SCAN 03
PRINT SCAN 04
PRINT SCAN 05
PRINT SCAN 06
PRINT SCAN 07
PRINT SCAN 08
PRINT SCAN 09
PRINT SCAN 10
PRINT SCAN 11
PRINT SCAN 12
PRINT SCAN 13
PRINT SCAN 14
PRINT SCAN 15
PRINT SCAN 16
PRINT SCAN 17
PRINT SCAN 18
PRINT SCAN 19
PRINT SCAN 20
PRINT SCAN 21
PRINT SCAN 22
PRINT SCAN 23
PRINT SCAN 24
PRINT SCAN 25
PRINT SCAN 26
PRINT SCAN 27
PRINT SCAN 28
PRINT SCAN 29
PRINT SCAN 30
PRINT SCAN 31
PRINT SCAN 32
PRINT SCAN 33
PRINT SCAN 34
PRINT SCAN 35
PRINT SCAN 36
PRINT SCAN 37
PRINT SCAN 38
PRINT SCAN 39
PRINT SCAN 40
PRINT SCAN 41
PRINT SCAN 42
PRINT SCAN 43
PRINT SCAN 44
PRINT SCAN 45
PRINT SCAN 46
PRINT SCAN 47
PRINT SCAN 48
PRINT SCAN 49

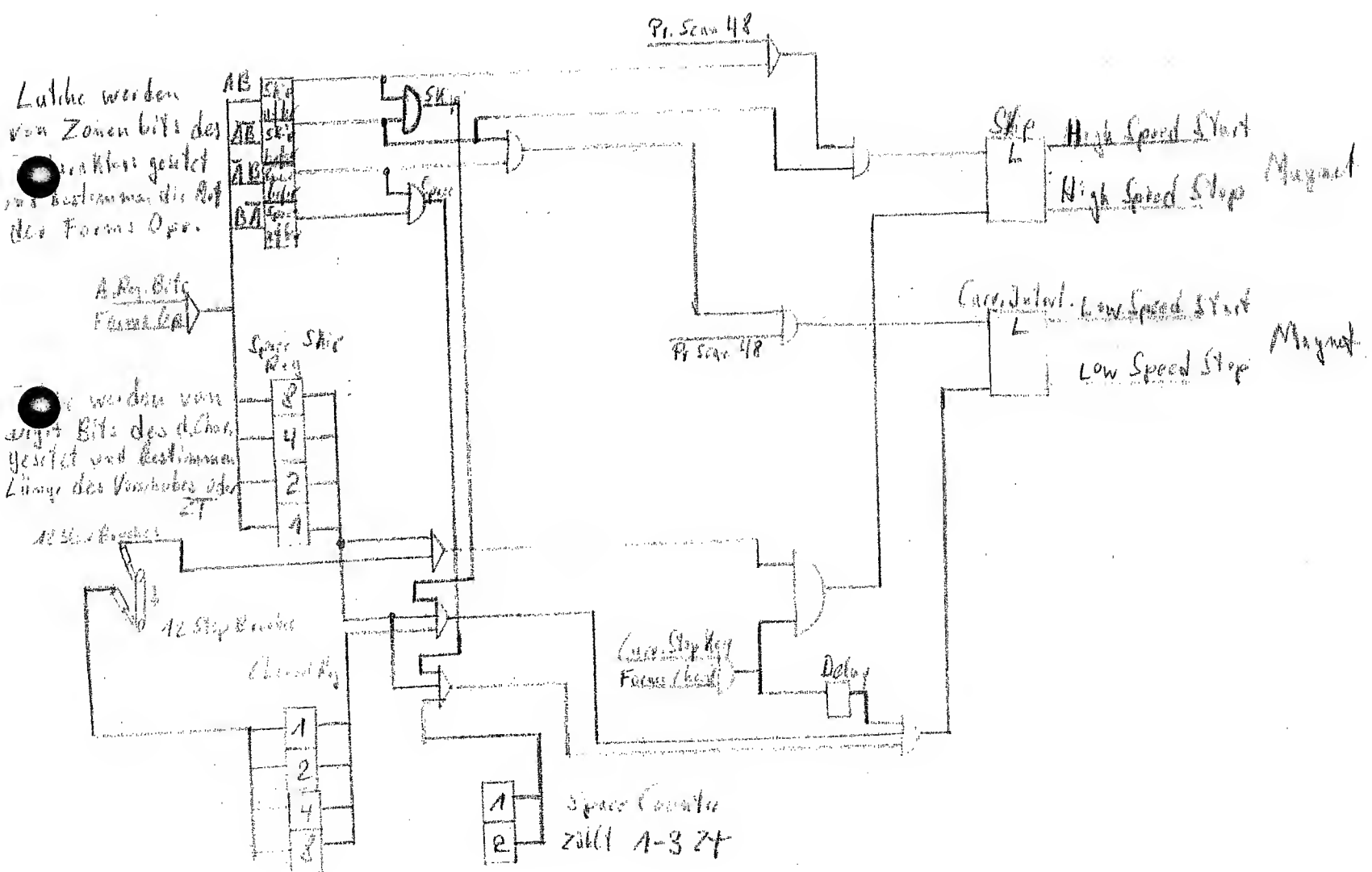
ON BUFFER PRINT MOD 15+11
EXCEPT UN SUBSCAN 3 WHEN
IT IS +8

←D

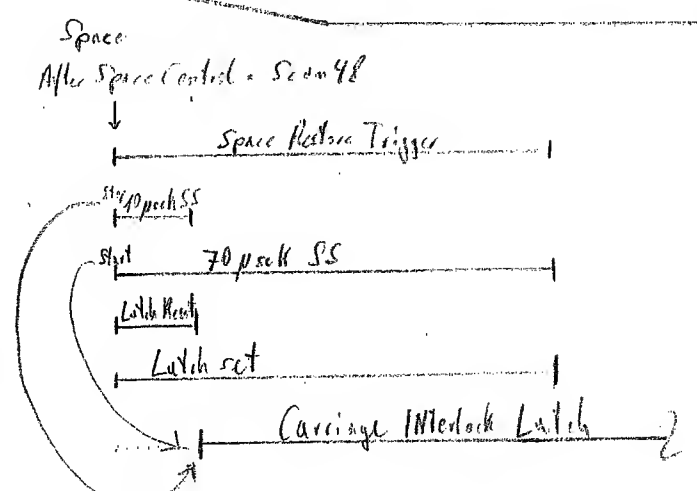
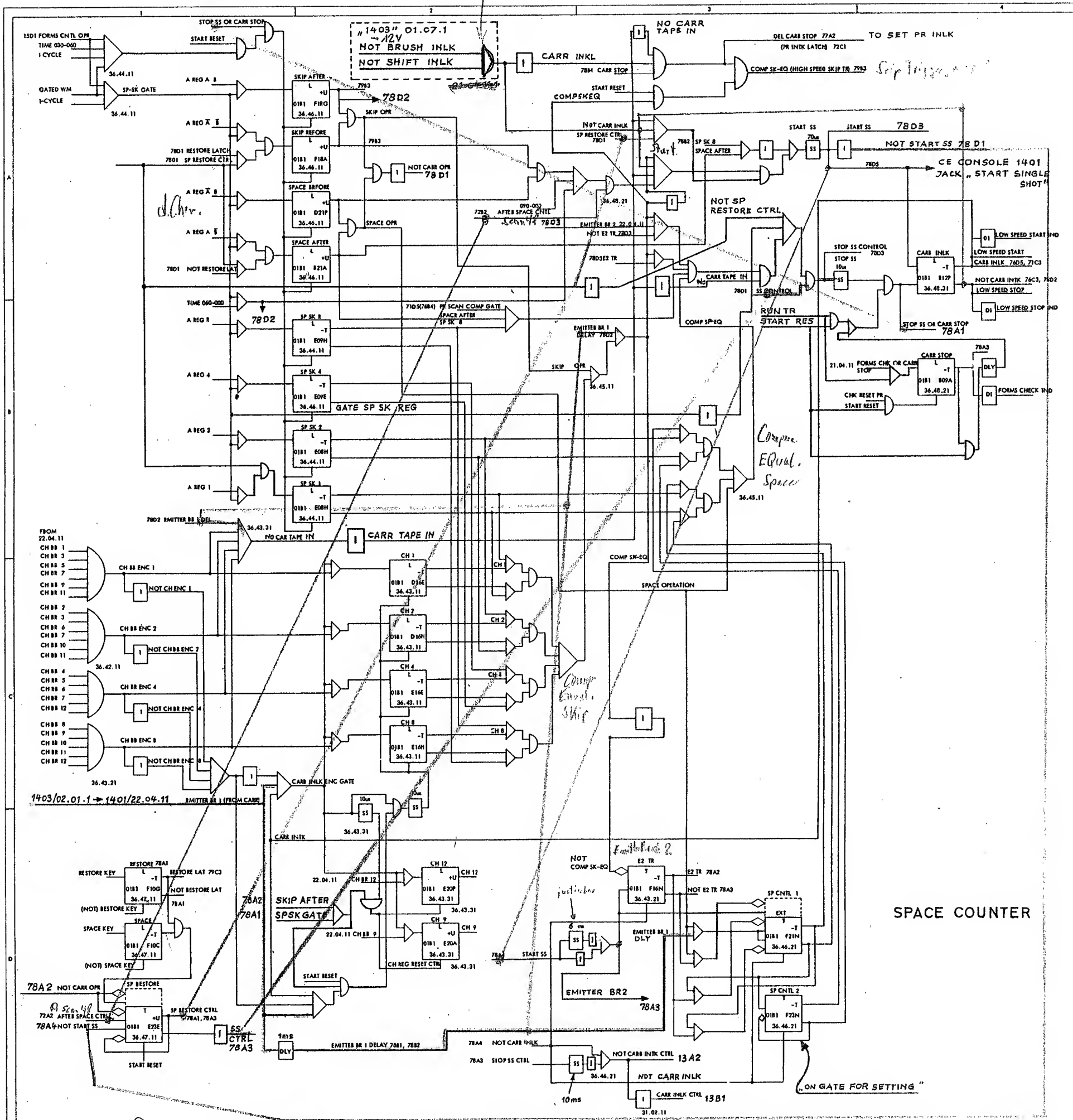
77. PRINT BUFFER CONTROLS



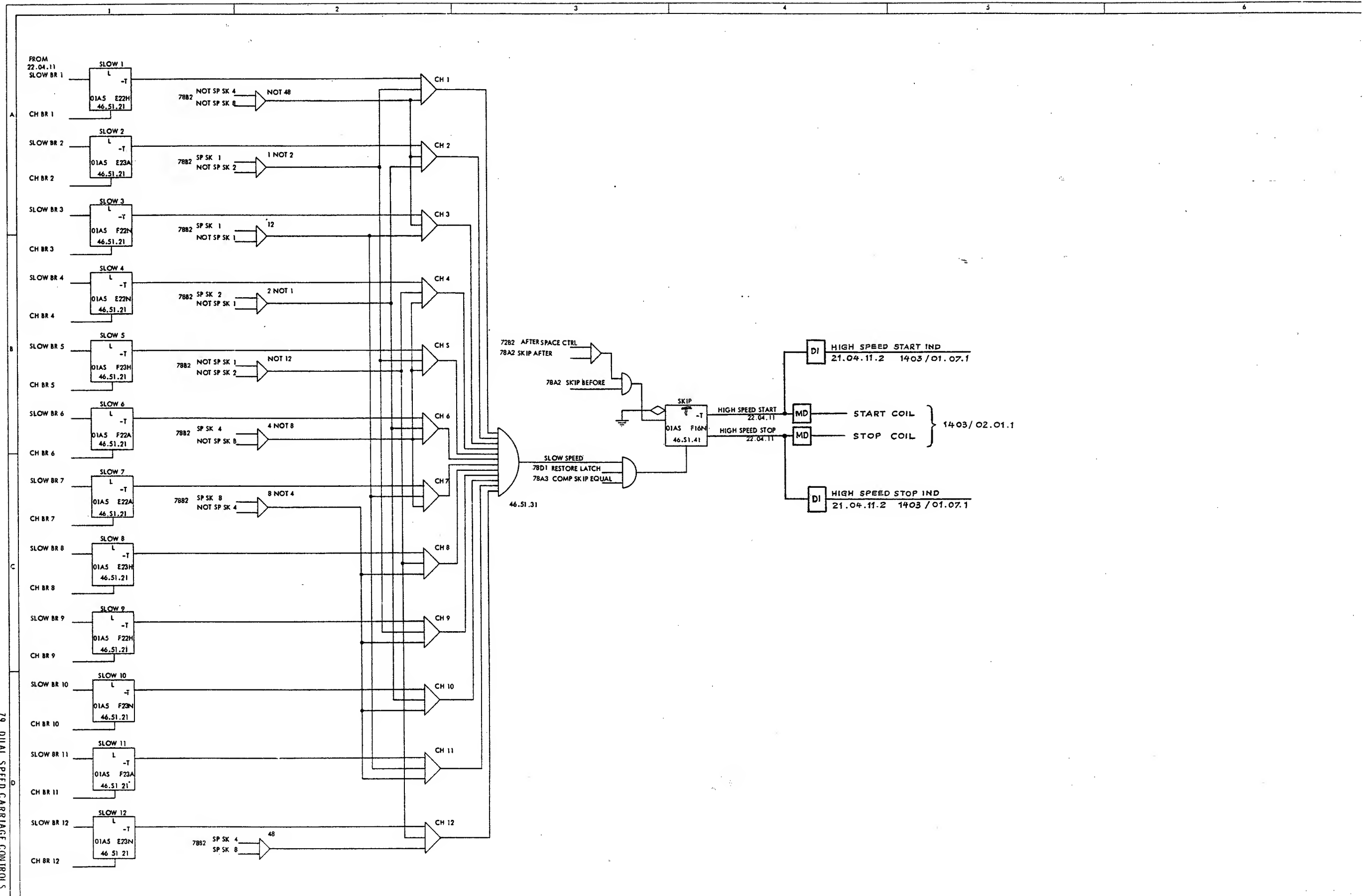
Die werden von
am Ende des d. Chor
gesetzt und bestimmen
Länge des Vorhubs ab
ET



Konkultin (Parker)



78 CARRIAGE CONTROLS



Ret 2.3.1980

Prüf. RU 230 CO4 Remind. Blatt 1000

Wird Load Point von CO3 erhalten bleibt!

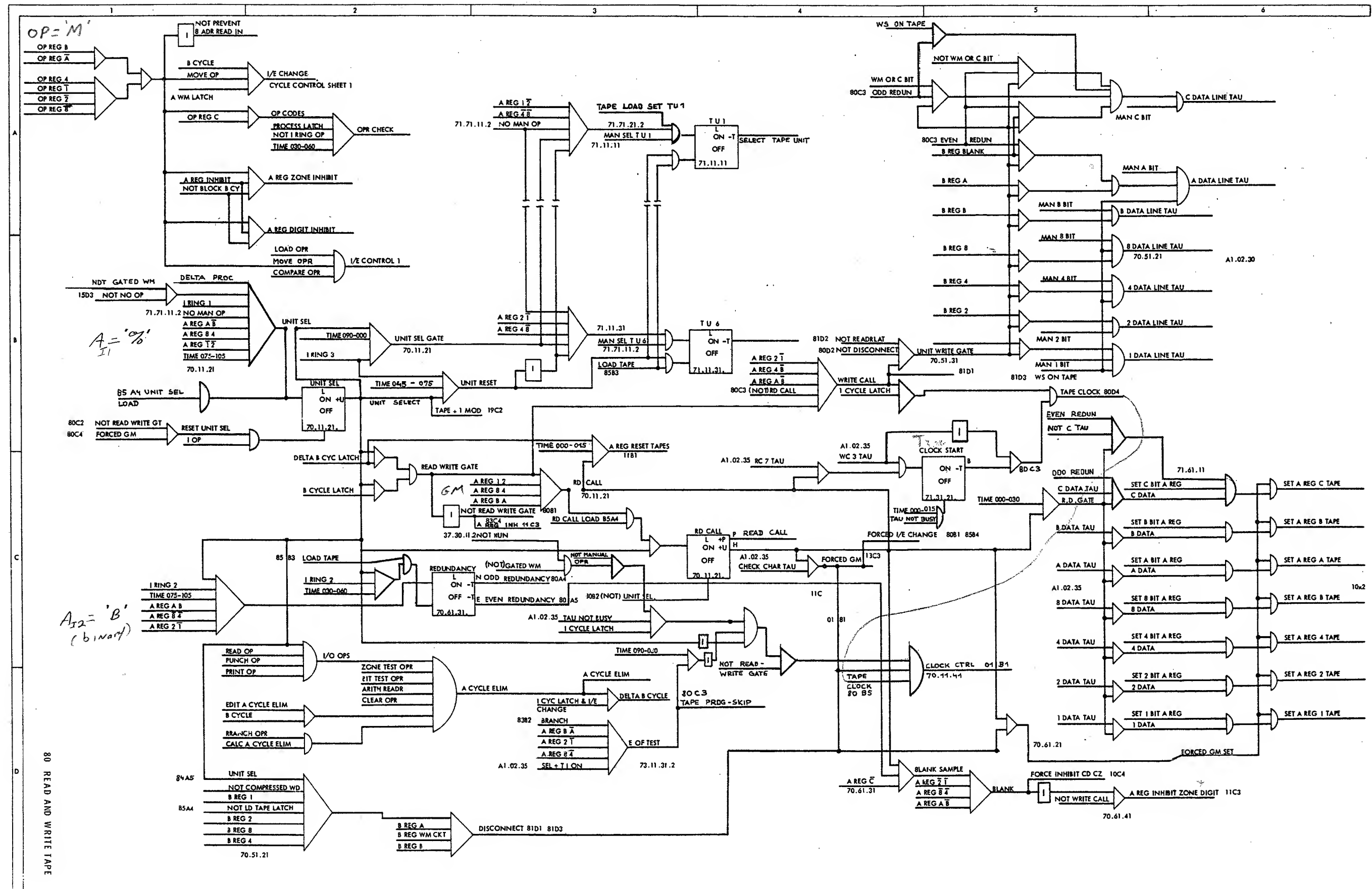
Load Pt. Lat. zu spät Reset. (an Indicator zu sehen)

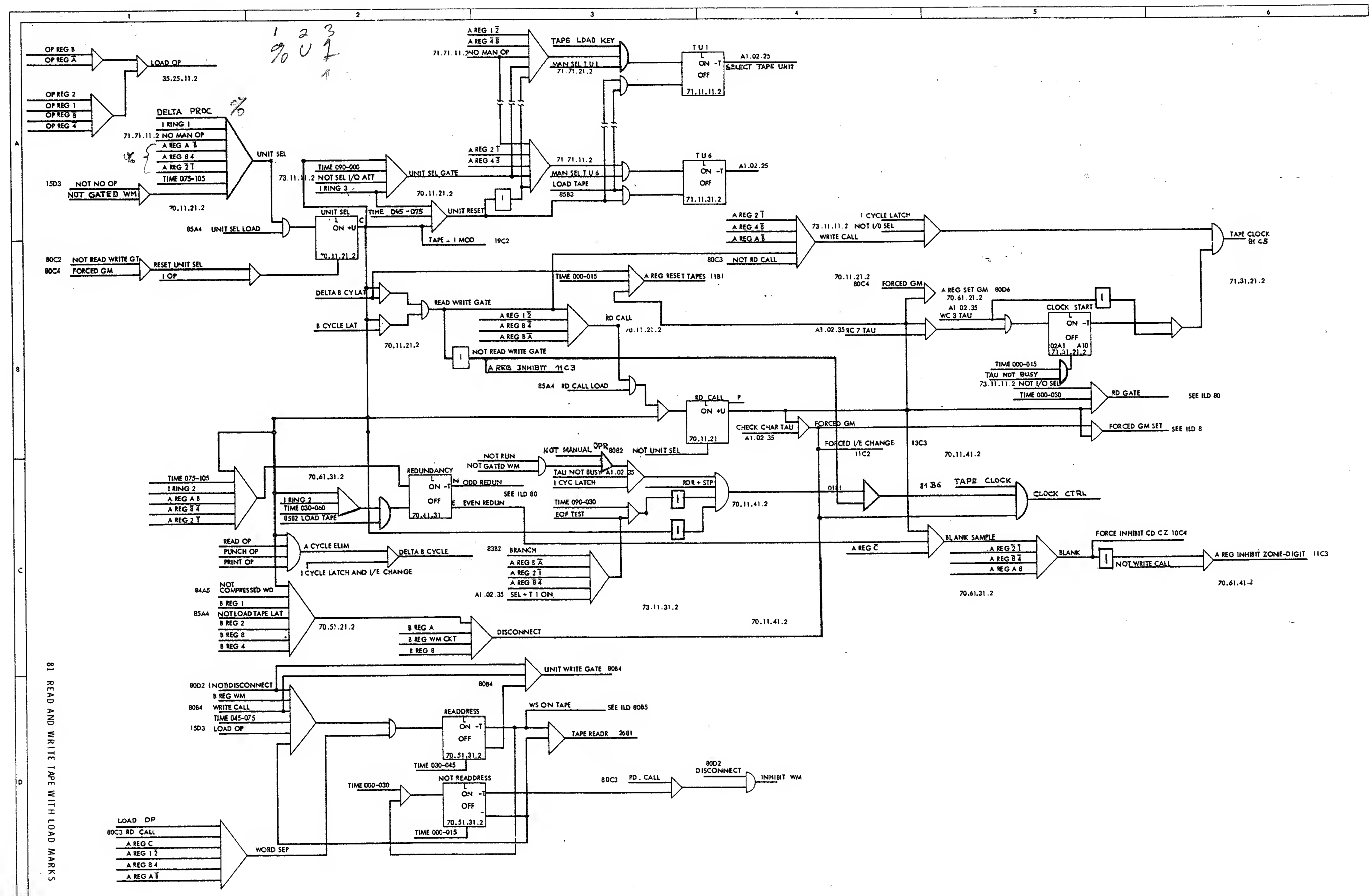
- U Load Pt. (71.31.21.)

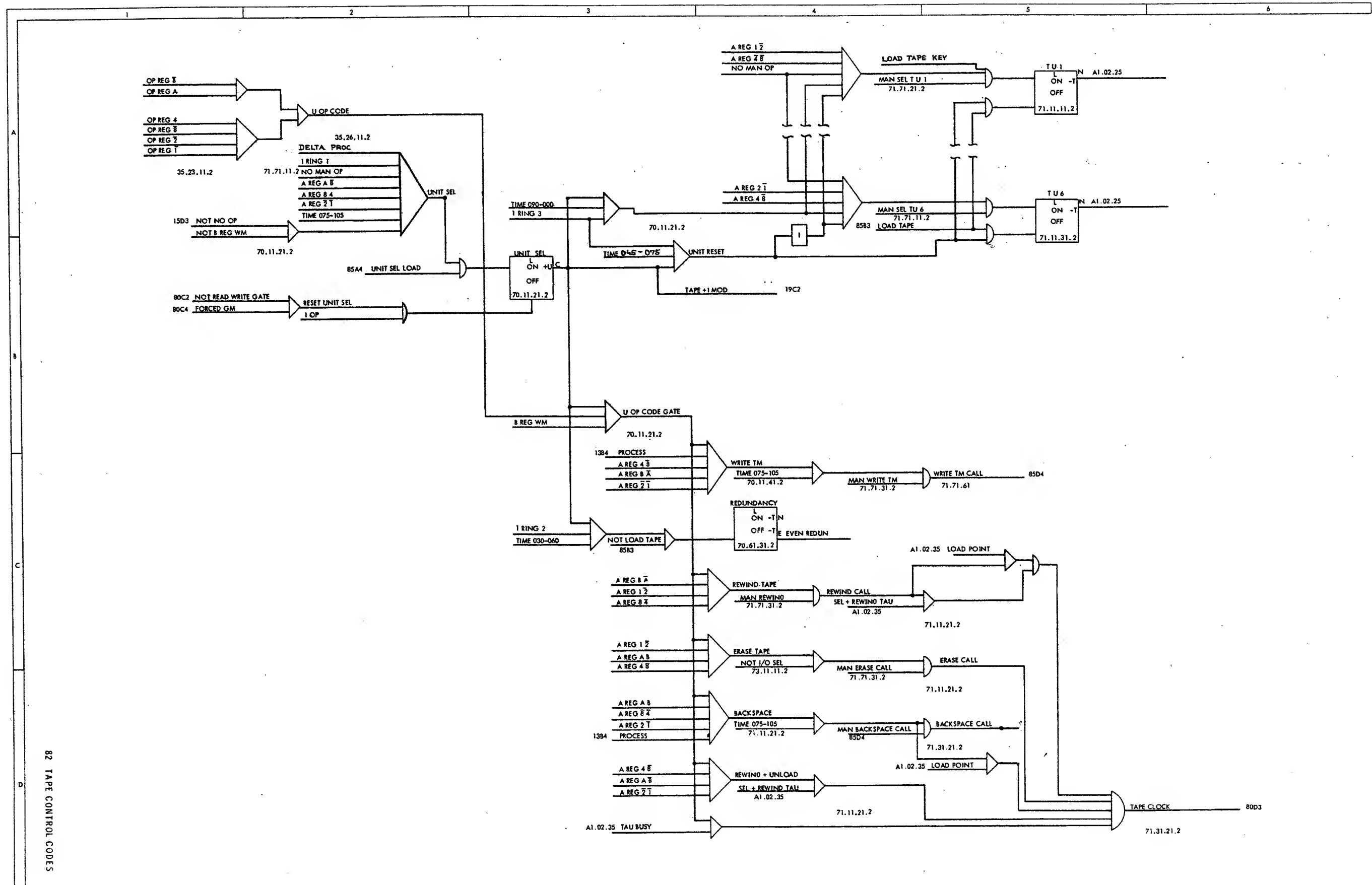
LP Lch. (89.60.02)

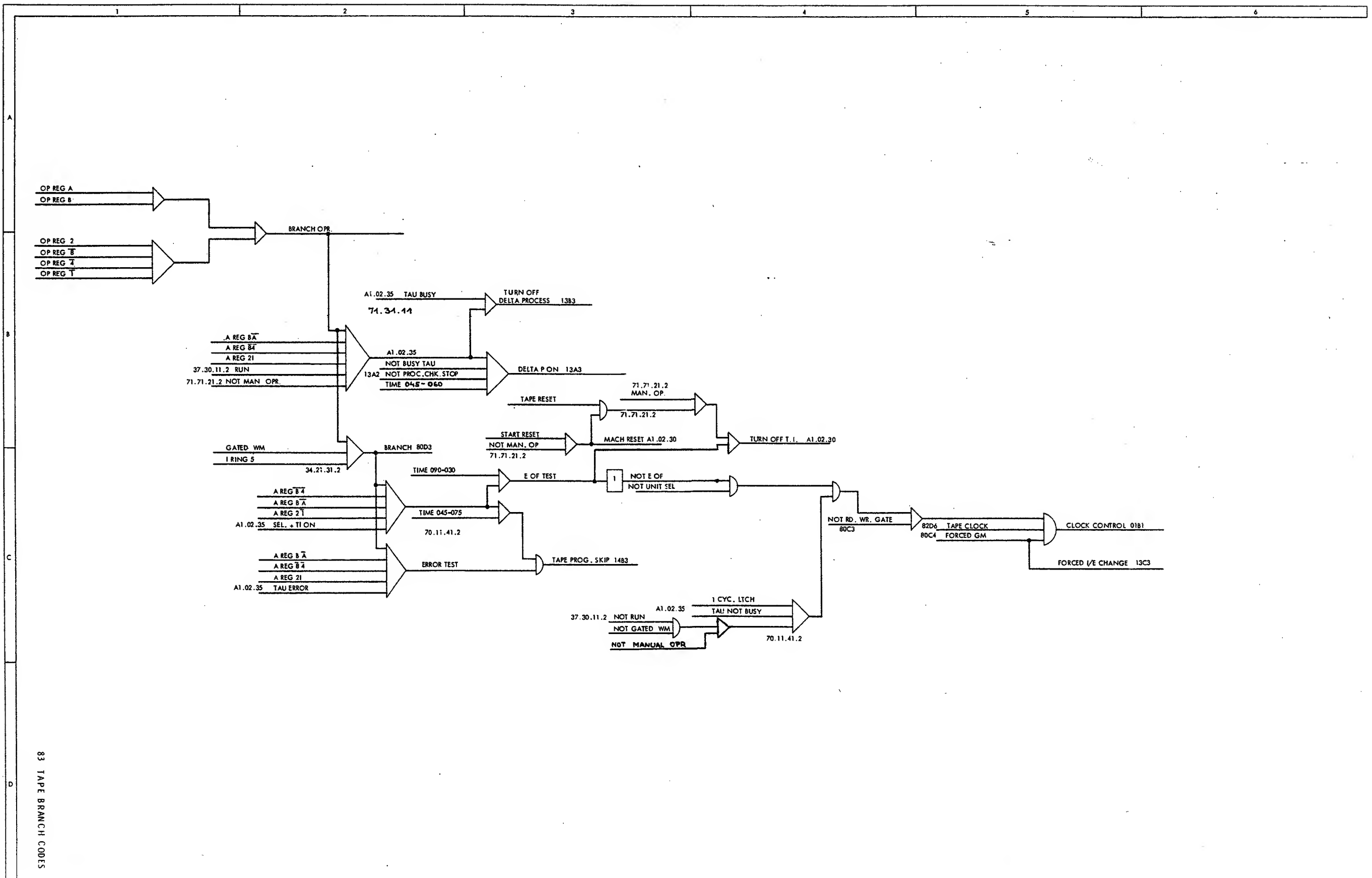
DB2 wurde in OL BL CO8-CO9 getauscht

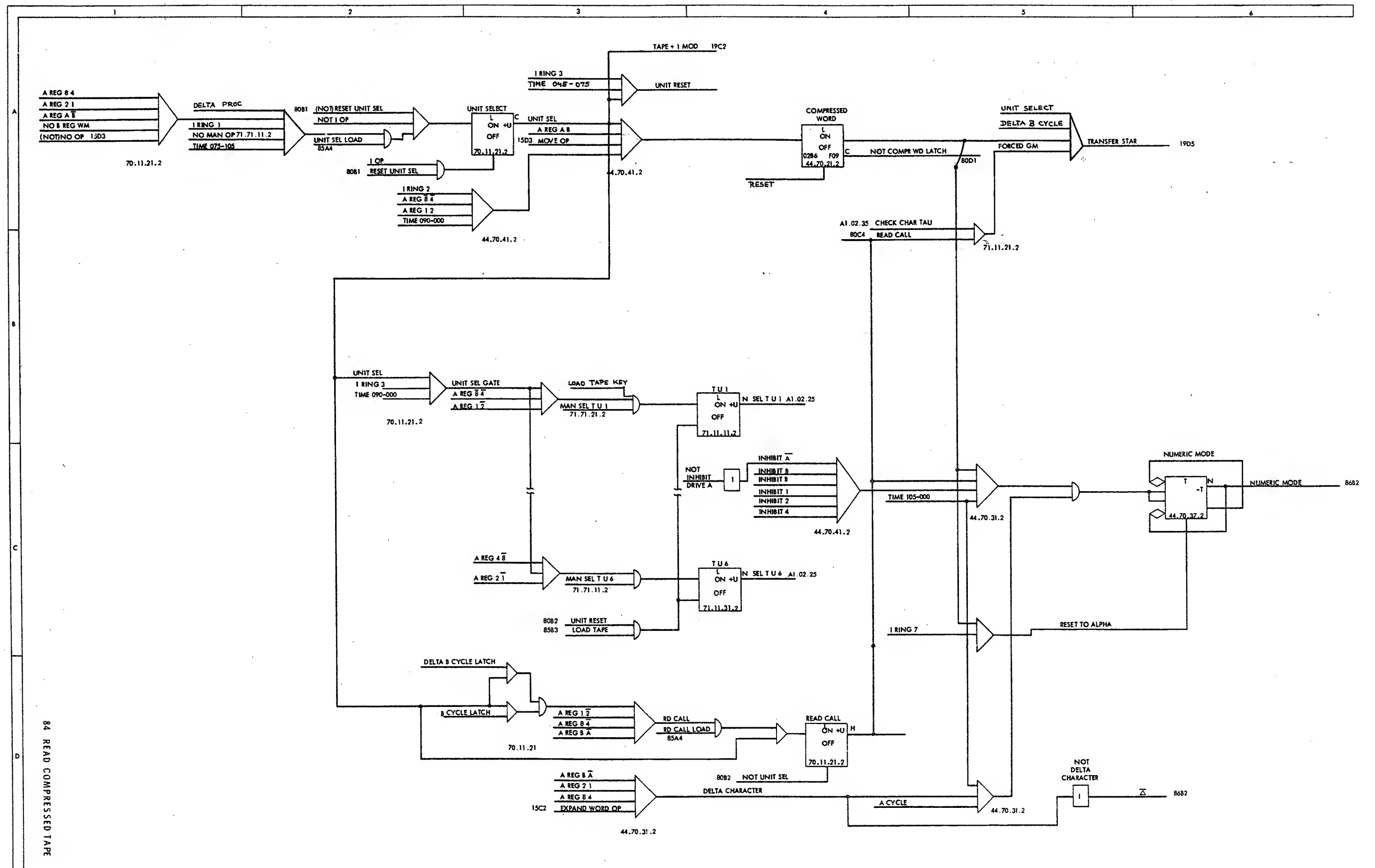
A-B System in CO9 wird
nicht benutzt

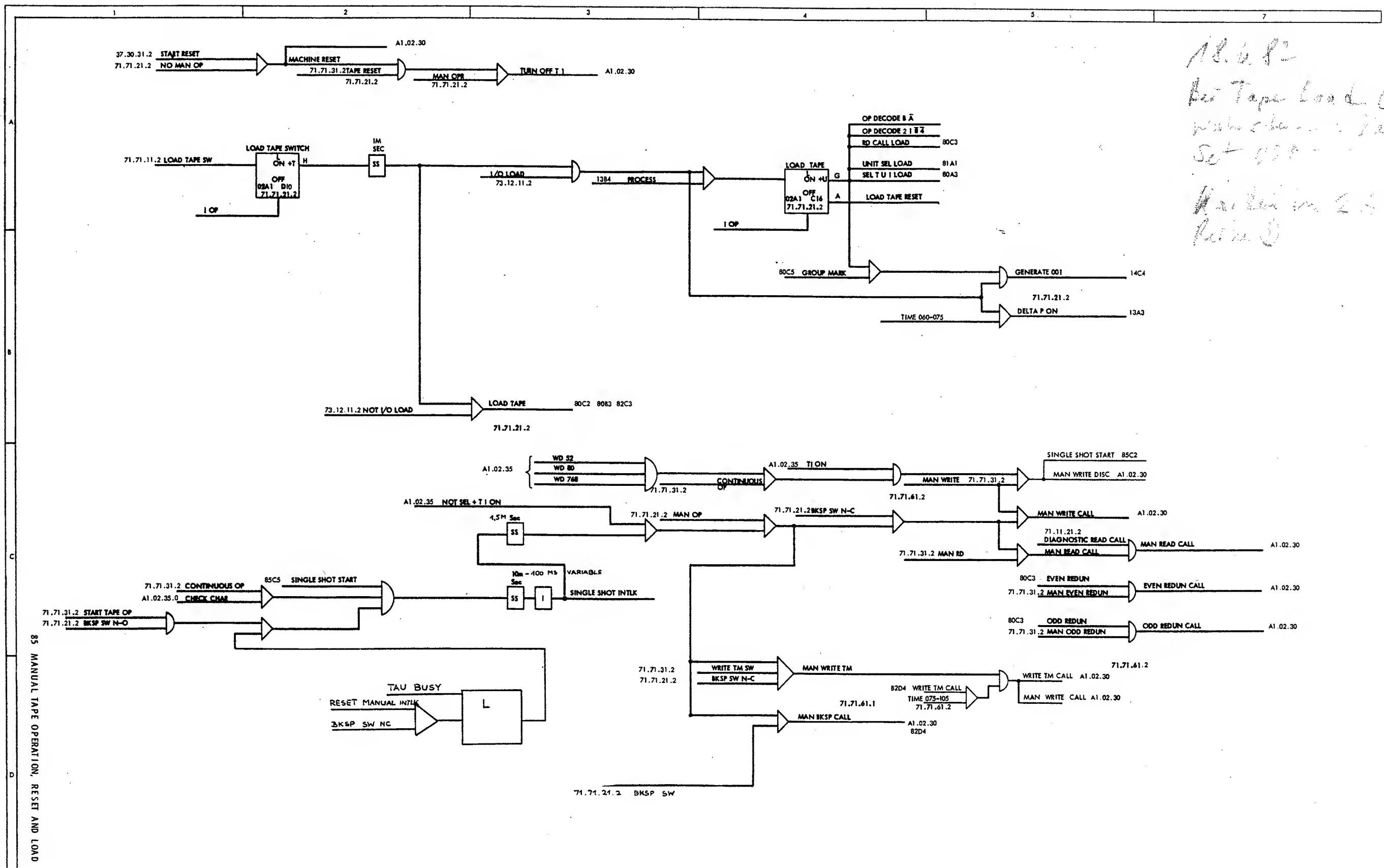












18.6.82
Per Tape Load (Common)
w/wh...
Set 000 -
Wait in 2.5
Pulse 3

